



*Preserve Wild Santee*

May 22, 2015

Mr. Dennis Campbell  
County of San Diego  
Planning & Development Services  
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San Diego, CA 92123  
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**RE: Otay Ranch Village 13 Resort Village Draft EIR, SCH NO. 2004101058**

Dear Mr. Campbell,

O-15-1

The California Chaparral Institute, Center for Biological Diversity and Preserve Wild Santee offer the following comments on the Draft Environmental Impact Report for the Otay Ranch Village 13 Resort Village project. Our groups are extremely concerned regarding the significant adverse environmental impacts of the proposed Otay Ranch project. Our concerns include impacts to biological resources, water supply, public safety, climate change and visual resources.

**Significant Adverse Impacts to Public Safety due to Wildfire Exposure**

O-15-2

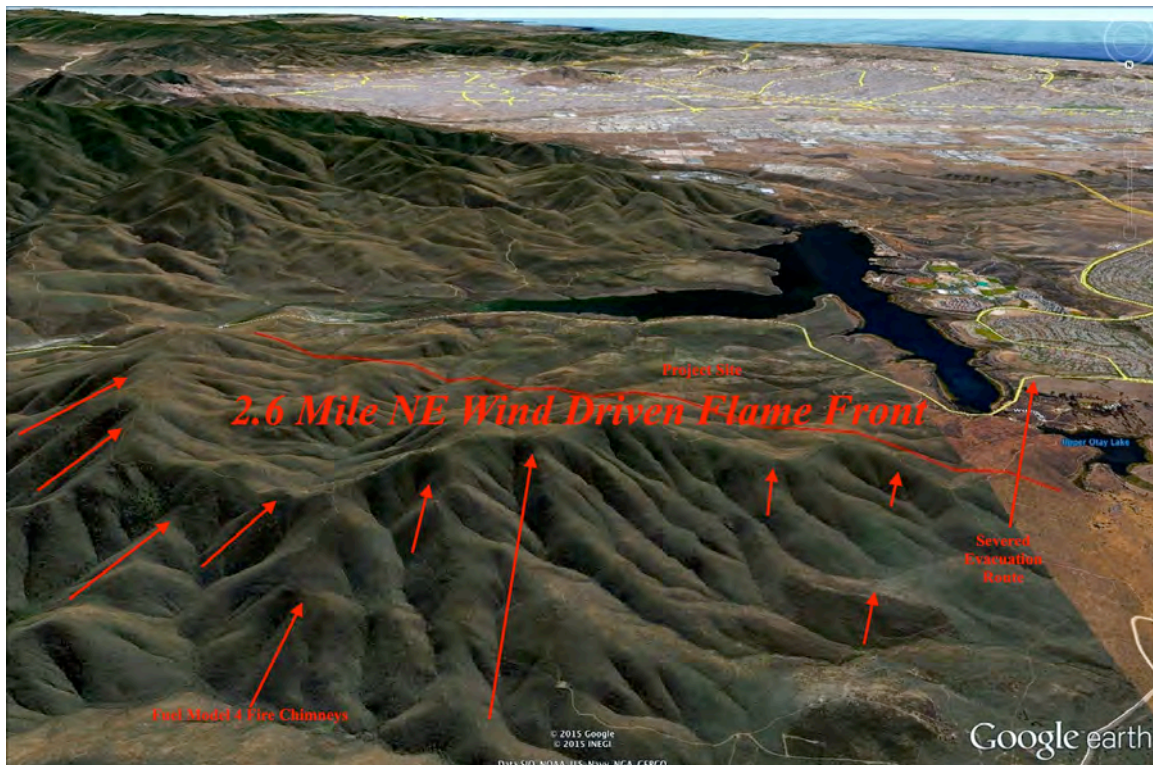
The project seeks to locate in the absolute worst location of all lands surrounding Lower Otay Lakes Reservoir for exposure to Santa Ana wind driven firestorms. The project site is located entirely within a "Very High Fire Hazard Severity Zone" as mapped by the California Department of Forestry and Fire Protection,<sup>1</sup> yet the Fire Protection Plan (FPP) fails to even acknowledge that severe risk designation in its geographic site description. [Sections 2.1 & 2.2] The development breaches the Lake's protective barrier that shields existing development to the southwest and would create an urban subdivision with full exposure to northeast wind driven

<sup>1</sup> <http://frap.fire.ca.gov/projects/hazard/fhz.php>



O-15-2  
Cont.

wildfires. The significant adverse impacts of this choice are numerous and inadequately mitigated. Some significant adverse impacts are not even considered. The FPP underestimates or downplays the firestorm intensity potential of the topographic features at the site vicinity [FPP Section 2.2.1, page 3]. The rugged slopes just northeast of the ridgeline of the Jamul Mountains contain numerous fire chimneys with Fuel Model 4 vegetation that will accelerate fire intensity. Fires that obtain great momentum burning up the mountain ridge would be fanned through the western drainages of the ridgeline watershed and take accelerated runs up northeastern aspect slopes and chimneys on the project site, some of which interface with planned residential development. [DEIR Figure 2.1-0] Such a fire would sever the only western access to Chula Vista over Otay Lakes Road.



O-15-3

The lengthy new highly exposed wildland-urban interface (WUI) created will necessitate changes to fire suppression tactics in the vicinity of the project site along with increased demand for suppression resources that increases the likelihood of insufficient resources along the entire currently configured WUI. Aerial attacks with fire retardant drops will be used in an area that presently can be allowed to burn up to the lakeshore without such retardant drops or intervention, which allows limited suppression resources to be focused on other highly vulnerable portions of the WUI. The new demand created by the project for fire retardant drops to protect property will introduce pressure to use the toxic

chemicals contained within fire retardants adjacent to water supplies and on lands with listed species.<sup>2</sup> Fire retardant use can type convert shrublands to grasslands and otherwise adversely impact habitat listed species depend upon. These significant adverse impacts are not considered, disclosed, or mitigated. Will these impacts be mitigated by creation of a fire retardant exclusion zone that is disclosed to fire-fighting agencies and property owners?

O-15-3

Cont.

The introduction of residences to the project site also precludes the use of the eastern lakeshore as an anchor point for backfiring operations, which is one of the few effective ways to battle the head of wildfire that has grown too intense for direct attack. It is not possible to ignite backfires that risks people, property or evacuation routes. This is a significant adverse impact to fire suppression / control tactics for the existing WUI within the City of Chula Vista near Otay Lakes that can be partially mitigated by consolidating or reducing the project's WUI design.

### **Guidelines for determination of significance – what about risks to people and property?**

*"Fire is a dynamic and somewhat unpredictable occurrence and as such, this plan does not guarantee that a fire will not occur or will not result in injury, loss of life or loss of property." [FPP, page 45]*

O-15-4

Did the Draft EIR omit the following question from the Guidelines for determining significance? If so, why?

"Would the proposal:

Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including when wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?" [City of San Diego Initial Study Questions]

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<sup>2</sup> A US-Forest Service Record of Decision creates avoidance areas for fire retardant use, which considers the adverse impacts to listed species and waterways. For example, fire retardant use should be avoided within 300 feet of water bodies and waterways [Calfire also follows the 300 feet restriction]. "Nationwide Aerial Application of Fire Retardant on National Forest System Land – Record of Decision", USDA-Forest Service, December 2011, pages 1-6, 12-15.

[http://www.fs.fed.us/fire/retardant/eis\\_info.html](http://www.fs.fed.us/fire/retardant/eis_info.html)

Also see "Policy for Aerial Delivery of Wildland Fire Chemicals Near Waterways", [http://www.fs.fed.us/rm/fire/wfcs/Application\\_Policy-MultiAgency\\_042209-UPDATE.pdf](http://www.fs.fed.us/rm/fire/wfcs/Application_Policy-MultiAgency_042209-UPDATE.pdf)



While the County Guidelines<sup>3</sup> utilized for preparation of the Draft EIR include demonstration of compliance with fire code, without considering the factors listed above and utilized by the City of San Diego, the County Guidelines are inadequate. It is possible to have significant adverse impacts to public safety even if the project is able to meet County fire code or become consistent with a Fire Protection Plan (FPP).

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Furthermore, as pointed out by the FPP,  
*“While these standards will provide a high level of protection to structures in this development, and should reduce the potential for ordering evacuations in a wildfire, there is no guarantee that compliance with these standards will prevent damage or destruction of structures by fire in all cases.”* [FPP, page 34]

*“Interior sprinklers **may** also protect a structure if a wildland fire enters the structure through a window or door. They **will not** protect against a fire in the attic unless attic sprinklers are installed as part of the system design.”* [FPP, page 45, bold emphasis added]

### **Failure to Consider Significant Adverse Impacts to People Evacuating from or Attempting to Shelter at the Project Site**

O-15-5

*“It was nearly one year ago that a dozen Santa Ana wind-whipped wildfires roared through San Diego County neighborhoods, devouring 27,000 acres and 65 homes. [San Diego County Fire Chief Tony] Mecham said fighting fires during strong Santa Ana wind events will continue to be a big challenge. ‘No firefighter in Florida would put their hands up and tell a hurricane to stop, and we’re kind of in that same mindset,’ Mecham said. ‘**We’re not going to stop the head of the fire.** We can work the sides. **Our goal really is life safety, to get people out.**’ Mecham urged*

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<sup>3</sup> Guidelines for the Determination of Significance

A significant impact from exposure to wildland fires would occur due to the following:

- A comprehensive Fire Protection Plan has been accepted and the Project is inconsistent with its recommendations.
- The Project cannot demonstrate compliance with all applicable fire codes.
- The Project does not meet the emergency response objectives identified in the Safety Element of the County General Plan or offer feasible alternatives that achieve comparable emergency response objectives. [DSEIR 2.6-20]



*people to prepare now by having an emergency supply kit and family evacuation plan in place."*<sup>4</sup> [Bold Emphasis Added]

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Cont.

Despite Fire Chief Mecham's warning that it is not feasible to stop a Santa Ana wind driven fire head and the Chief's goal "to get people out", the project has failed to prepare a Community Protection and Evacuation Plan deferring preparation to a point sometime prior to occupancy. "A Community Protection and Evacuation Plan (CPEP) will be prepared for the Otay Ranch Resort Village Community prior to occupancy." [FPP, page 43, DEIR 2.6-23] This deferred level of analysis should have been initiated from the inception of project design so that the project footprint could have been adjusted to account for the significant risk to public safety. Fire safety planning in VHFHSZs should not be after the fact/after the project footprint design when it becomes more cumbersome and expensive to alter the project design footprint.

*"The most common type of fire anticipated in the vicinity of the Project area is a wind-driven brush fire from the north, northeast during the fall with flame lengths reaching nearly 50 feet. The rate of spread would be rapid due to volatile fuels, wind, and low fuel moisture. A typical cause may be related to roadways (tossed cigarette, vehicle accidents, or vehicle fire), or agricultural tractor work, welding, burning, arson or fireworks discharged in the area."* [FPP, page 18]

The project site in potential need of evacuation includes "7,807 (estimate) residents, guests, staff." [FPP, page 18]

How long will it take to fully evacuate the project site [please account for the substantial traffic calming features]?<sup>5</sup>

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How does this estimate change during commuter hours?

At what points along the evacuation route(s) and for how long will traffic be stopped adjacent to wildland fuels?

What are the evacuation routes available for fires that originate from the most hazardous and likely ignition points? What is the radiant and convective heat intensity potential for all points along any potential evacuation route for a worst-case scenario fire?

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<sup>4</sup> Susan Murphy, "Fire Officials Say San Diego Should Brace For 'Unprecedented' Fire Season," KPBS, May 8, 2015. <http://www.kpbs.org/news/2015/may/08/fire-officials-urge-san-diego-residents-prepare-di/>

<sup>5</sup> Exhibit 21 Traffic Calming Plan, Otay Ranch Resort Village Specific Plan, page 41.



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Cont.

Where are the fuel model maps with percent slope for the project site and evacuation routes?

What points along evacuation routes are the most vulnerable to radiant heat and gridlock and what contingency safety zone or escape route exists for evacuees that are exposed to an expected acceleration in fire behavior/intensity?

How long will it take a Santa Ana Wind driven fire to reach the project site if ignited from SR-94 under extreme weather conditions?

Are there portions of the project site that firefighters would not be deployed to under extreme fire conditions?

What are the levels of radiant and convective heat potential that firefighters may be subjected to along any project WUI that they may be deployed?

How many miles of WUI or edge does the project add that must be maintained and defended?

Where are the escape routes and safety zones at the project site?

How many cul-de-sacs exist in the project and how many of them require evacuation into the direction of a Santa Ana wind driven fire?

How many residential units sit at and near the top of slopes on the WUI?

How many residential units sit at and near the top of fire chimneys on the WUI?

How do the alternatives compare on the above fire safety issues, and have alternatives been proposed that reduce or avoid these impacts?

Where are the BehavePlus Worksheets that support FPP Appendix C Table 4 Behave Plus Fire Modeling Results? [Results are "useless"<sup>6</sup> without revealing inputs]

The Draft EIR has not considered the significant safety issues listed above. Without doing so, the project has a significant adverse impact to public safety.

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<sup>6</sup> The BehavePlus manual states, "enough information to recreate the run must *always* be included with results. Tables of flame length or plots of spotting distances are useless if the information used to obtain those values is not provided." Faith Ann Heinsch & Patricia I. Andrews. BehavePlus fire modeling system version 5.0, USDA-Forest Service, December 2010, page 60.



## FPP Calculations for Fire Spread, Flame Length and Radiant Heat have Significant Implications for the Ability to Evacuate



***Radiant and Convective Heat Can Rapidly Sever Exit Routes - 2007 Wildfire***

Entering different weather and fuel related variable inputs will result in more intense fire intensity projections for the project site. Many reasonably different fire scenarios can be modeled that have significant implications for the project vicinity.

As stated by the FPP,

*"It should be noted that the results presented in Table 1 depict values based on inputs to the BehavePlus software. Changes in slope, weather, or pockets of different fuel types are not accounted for in this analysis. Model results are used as a basis for planning with an understanding that actual fire behavior for a given location will be affected by many factors, including unpredictable weather patterns, small-scale topographic variations, or changing vegetation patterns." [FPP, page 17]*

Different fire scenarios produce differing potential exposures to radiant heat. Personal exposure to radiant and convective heat sources can produce severe injury

O-15-7

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Cont.

and death. A distance of 4x flame length is considered a safe distance from radiant heat, but does not account for potential convective heat transfers. The FPP estimated “nearly 50 feet” flame length potential for natural lands adjacent to the site. This calculation has serious implications for the feasibility of evacuation routes and potential safety zones. Even longer flame lengths and greater intensities of radiant heat are possible. However, the FPP doesn’t consider the radiant heat exposure potential for evacuation routes for any fire scenario.

The Site Utilization Plan shows natural vegetation (some on steep slopes/Exhibit 6) adjacent to all of Otay Lakes Road and adjacent to new roads constructed to connect the three development bubbles.<sup>7</sup> The 50-foot flame length fire intensity modeled by the FPP impacts the evacuation routes with lethal levels of radiant heat.<sup>8</sup> The “Typical Edge Condition” figure shows vehicles traveling within 60-90 feet of the Preserve Edge.<sup>9</sup> At least 200 feet from the preserve edge is needed to prevent injury from radiant heat (4x flame length / Butler & Cohen). This does not add additional separation that may be needed for combustion in the Fuel Modification Zone or convective heat transfers. The “Typical Edge Condition” leaves evacuees vulnerable to lethal levels of heat. This is a significant adverse impact to public safety.

### **Radiant Heat Hazard Zone Exists Within 4x Flame Length**

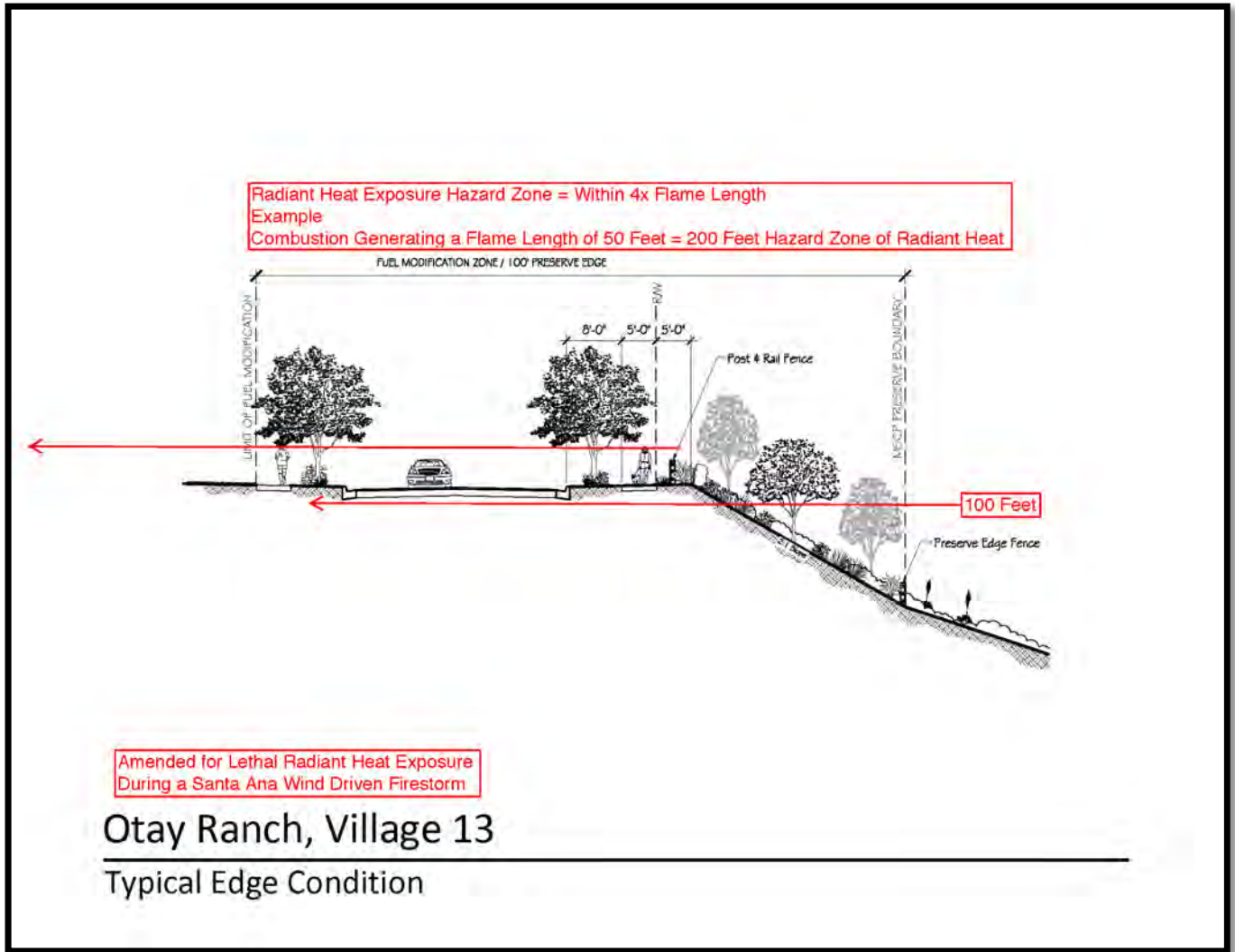
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<sup>7</sup> Exhibit 4, Site Utilization Plan, Otay Ranch Resort Village Specific Plan, page 20.

<sup>8</sup> For an “Extreme Fall Fire” in SH7 very high load dry scrub 14/ton/acre, 8,000 Btu/lb., 6 feet fuel bed, FPP Table 4 modeled 46-Foot Flame Length. Model Inputs: 0% Slope, 24 mph NE Wind, 55% Live Fuel Moisture, 2% 1-Hour Fuel Moisture, 12% Relative Humidity. Page C-3, C4. Note – RH and temperature are not BehavePlus inputs and the run worksheets are not included by the FPP for analysis.

<sup>9</sup> Appendix H1 Through H3 Fuel Modification Zone Profile, “Otay Ranch, Village 13 Typical Edge Condition.” Exhibit 7, Circulation Concept Map, Otay Ranch Resort Village Specific Plan, page 25 shows road widths ranging from 40-100 feet. Detailed street cross sections appear at pages 26-38.





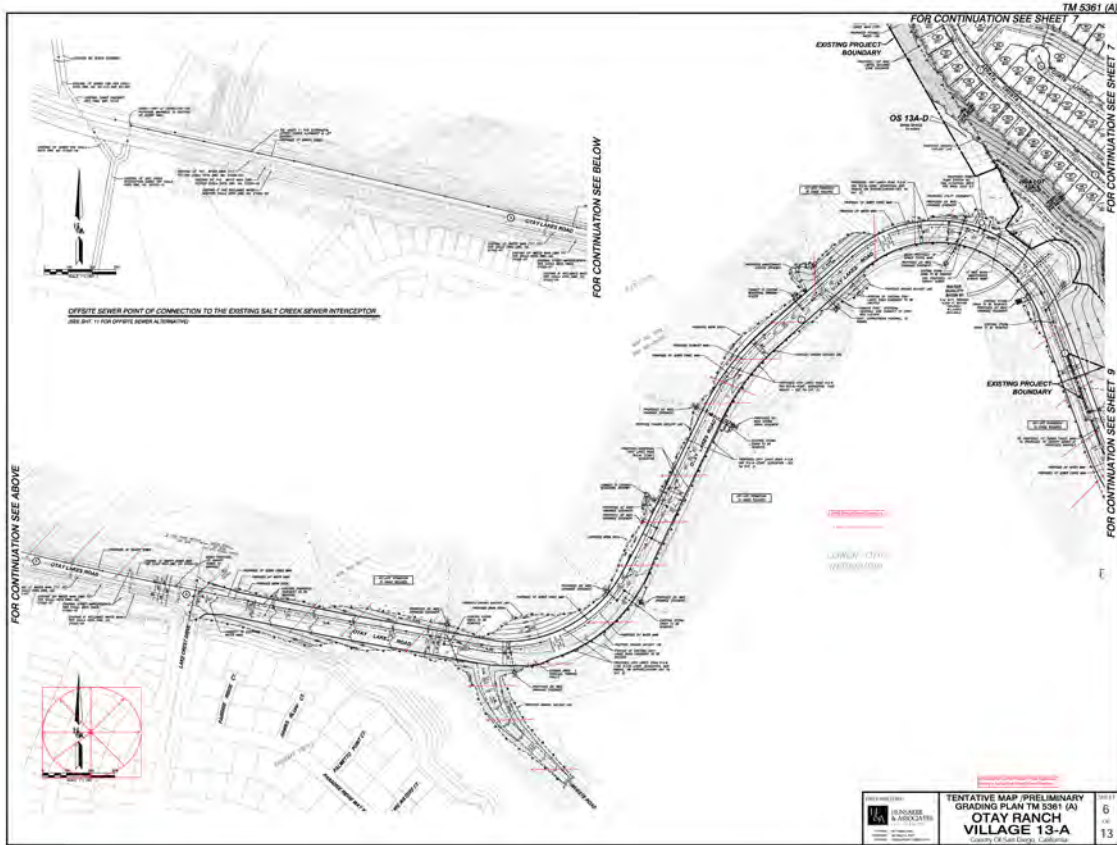
Evacuation routes within the project and all of Otay Lakes Road (which is required to exit the project site) have natural vegetation adjacent that becomes potentially lethal upon combustion.

Tentative Map Sheet 6 Amended for Lethal Radiant Heat Exposure provides an example of lethal heat potential (200-foot red arrows) that permeates the route that all project evacuees need to utilize exiting west to Chula Vista.

Since the evacuation routes need to traverse natural vegetation, the feasibility of evacuating the project's 7,800 occupants is in question. There needs to be an assessment of how rapidly fires from likely ignition points will reach the project and its evacuation routes. There must be an assessment of how long it will take to evacuate the project. Trigger points must be developed for initiating and terminating evacuation attempts. The FPP has not done this analysis.

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## Tentative Map Sheet 6 Amended for Lethal Radiant Heat Exposure

[A high-resolution map is attached at Appendix 1: Exhibit C]

O-15-9

Considering the vulnerability of the evacuation routes, what is the alternative for the 7,800 people expected on site? The strategy and application for “shelter-in-place” and/or evacuation must be clarified. There is no margin for error under firestorm conditions. There is clearly too heavy an impact upon the access routes to have any confusion after ignitions impacted by moderate to extreme fire weather conditions. Just the misunderstanding or lack of disclosure of the hazard is a significant impact to public safety.

O-15-10

Not only does the FPP fail to estimate the fire’s time of arrival to the project site from likely ignition points, but it underestimates the potential speed of a fire head when propelled by extreme fire weather. FPP Table 1 estimates a surface rate of spread of 2.3 mph for a Fall Fire and does not provide an estimate for an Extreme Fall Fire. [FPP page 16] The BehavePlus model generates a surface rate of spread of 400.7 ch/h or 5 mph utilizing the partial inputs the FPP revealed for its run and filling in for the others.<sup>10</sup>

<sup>10</sup> 1 chain per hour = .0125 mph. 1 chain = 66 feet. 1 mile = 80 chains or 5,280 feet.



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While the average speed of a fire that includes spotting ahead will vary based upon many variables including the distance and duration of interest, the rugged topography and continuous vegetation northeast of the project site make the potential for rapid bursts to vulnerable points of the project from the northeast a great concern. The Cedar Fire corridor and the project site are similar in the breadth of continuous natural vegetation to the northeast. The speed of the Cedar Fire varied widely as weather and associated variables changed. The Cedar Fire 2003 After Action Report<sup>11</sup> cited the Cedar Fire traveling 4.4 miles in 44 minutes near Wildcat Canyon area and the fire accelerating to over 20 mph near Poway. Similar fire acceleration potential exists northeast of the project site that places into question the feasibility of evacuating the project.



*Cedar Fire victim perished in area of wide clearance.*

O-15-11

**The project has a single evacuation route to the west over Otay Lakes Road for Santa Ana wind driven fires that is potentially impacted by lethal levels of radiant heat.** (Reference Tentative Map Sheet 6 Amended for Lethal Radiant Heat Exposure). The Road has full northeast exposure approximately 5.5 miles from likely ignition points on SR-94. That leaves very little time to evacuate the 7,800 occupants of the project. Under numerous Santa Ana wind driven fire scenarios, evacuation will not be feasible. This is a significant adverse impact to public safety that is not analyzed, disclosed or mitigated. Will it be disclosed to future residents and insurance companies (property and auto)?

<sup>11</sup> Fire Chief Jeff Bowman, Cedar Fire 2003 After Action Report, June 2004, pages 77, 79. (Note - the most extreme fire conditions are not likely to produce fires exceeding 14 mph for any significant distance/duration. An approximately 20 mile segment of the Cedar Fire Corridor had the Fire moving about half that speed with sustained winds of 25 mph) Sunday morning 10/26/2003. See the fire spread map on page 6.



O-15-12 | What is the potential for gridlock on and at intersections along Otay Lakes Road during evacuation? Consider that over five miles of existing WUI in Chula Vista may need to be evacuated at the same time. The flame front of the Cedar Fire was 5 miles wide when it slammed into Scripps Ranch devouring homes there.<sup>12</sup>

O-15-13 | It is not a question of whether the project site will face a long flame front, but when. With the geography and design of this project, the Otay flame front is likely to be nearly 3 miles wide for the project site alone. In this fire scenario there is no viable eastern exit and there is a very limited window for a western exit over Otay Lakes Road to Chula Vista. Evacuation traffic would be forced to drive toward the flame front and into the wind for significant road segments. Smoke ahead of the flame front could limit visibility enough to gridlock the evacuation process with disastrous consequences.

O-15-14 | Firefighters are also required to establish viable escape routes and safety zones (that do not require deployment of a fire shelter or entry of a structure).<sup>13</sup> “Fight fire aggressively, having provided for safety first” (Reference Standard Firefighting Orders 4 & 10 . Under extreme fire weather conditions, escape routes are impassible and the WUI is subject to radiant and convective heat. Inappropriately designed land uses tempt firefighters to stretch their operations beyond safety thresholds in defense of life and property.

The Scripps Ranch northeast wildland interface was built to burn - it is irresponsible to duplicate this land use mistake at Otay Ranch.

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<sup>12</sup> Ibid., page 82.

<sup>13</sup> Bret w. Butler and Jack D. Cohen, “Firefighter Safety Zones: How Big Is Big Enough”, International Journal of Wildland Fire, 1998





*Cluster burn on Grass Valley Fire, 2007. Photo by Don Kelsen, LA Times*

**Significant Risk of Cluster Burns is a Significant Adverse Impact to those that Cannot Evacuate**

*"This significant reduction in fire intensity does not mitigate the effect of flying embers, which may travel a mile or more during wind driven fires." [FPP, page 18]*

O-15-15 FPP acknowledges that control efforts at the fire head are probably ineffective for fires with flame lengths ranging from 8-11 feet and that for flame lengths over 11 feet "control efforts at the head of the fire are ineffective."<sup>14</sup> The EIR further acknowledges that flame lengths for both Summer and Fall fires are expected to exceed eleven feet. Therefore, fires that ignite under extreme weather conditions are likely to spread rapidly and consume all continuous fuels in the path of the fire head. Under firestorm conditions, it is probable that people and structures in the vicinity of the wildland interface will face a significant threat of loss, injury or death (especially at the fire head).

O-15-16 It is also important to recognize that standardized fuel modification zones generally sufficient to prevent structure ignition from direct flame impingement does not

<sup>14</sup> FPP Appendix C, Table 3, page C-4.



assure survival of the associated structures.<sup>15</sup> Even though 189 structures were destroyed (with another 129 damaged) in the Freeway Complex Fire, the Orange County Fire Authority (OCFA) considered "...brush clearance to be adequate" based upon its inspections of fuel management zones prior to the fire.<sup>16</sup> Wind driven embers are capable of penetrating the smallest of openings<sup>17</sup> on structures and can ignite spot fires adjacent to structures in ignitable materials that can then damage or

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<sup>15</sup> "Fire officials believe that embers driven by raging winds through small openings or against exposed wood were responsible for igniting a majority of the 1,125 homes leveled by the Witch fire, the most destructive in California this year...An analysis of the Witch fire's pattern of destruction points to deficiencies in long-held beliefs about building in fire-prone areas. Fire-resistant walls and roofs are helpful, and brush clearance is essential. But alone they are insufficient in the face of millions of burning embers flying horizontally more than a mile ahead of the flames. Of 497 structures that burned in unincorporated areas of San Diego County during the Witch fire, more than half had fire-resistant walls and roofs, a Times analysis of government data showed. Information on construction materials has not been compiled for neighborhoods inside the cities of San Diego and Poway, but senior fire officials estimate that well over 75% of the destroyed homes had fire-resistant exteriors." "Lessons From the Fire" Joe Mozingo, Ted Rohrlich and Rong-gong Lin li, Los Angeles Times, December 23, 2007.

<sup>16</sup> "In 2008, staff inspected 587 WUI parcels and found only 16 out of compliance with minimum requirements for defensible space. By July 22, all properties were in compliance. In addition, staff inspected approximately 790 of some 950 fuel modification parcels to ensure that they were in "substantial compliance" with provisions of the requirements and found 322 in need of some type of corrective action. As of the date of the fire, all but 25 had met minimum requirements. A preliminary assessment of homes destroyed or damaged in the freeway fire indicates that they were victim to ember intrusion rather than direct flame impingement indicating brush clearance was adequate." Freeway Complex Preliminary Report to City of Yorba Linda, Orange County Fire Authority (OCFA), December 2, 2008, page 6.

<sup>17</sup> Research data has been gathered regarding the ineffectiveness of current ventilation standards for preventing ember penetration. BFRL/NIST researchers tested ¼-inch or 6 mm (the recently adopted California WUI standard) 3 mm and 1.5 mm screens. "For all screen sizes tested, the firebrands were observed to penetrate the screen and produce a self-sustaining smoldering ignition inside the paper beds inside the structure." Samuel L. Manzello, John R Shields, and Jiann C. Yang, On the Use of a Firebrand Generator to Investigate the Ignition of Structures in Wildland-Urban Interface (WUI) Fires, Building and Fire Research Laboratory (BFRL), National Institute of Standards and Technology (NIST), 2007, p. 11.



ignite structures.<sup>18</sup> Severe convective heat transfers through fire whirls/tornadoes can also bypass standard brush management zones.

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*"Extreme Wildfires can produce firebrand spot-ignitions at distances of a mile or more; however intense firebrand exposures within one-half to one-quarter mile often ignite numerous surface fires within a residential area that spread to contact and ignite homes and/or firebrands directly ignite homes."* US Forest Service Fire Scientist Jack Cohen, 4/23/2009

Homes with standard brush management zones still have the following significant vulnerabilities:

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- Vulnerability of structures to embers/firebrands due to extreme events, human error, or inadequate maintenance (i.e., fire tornados or fire whirls,<sup>19</sup> broken windows from flying debris, drapes left over windows, open windows, open doors and garage doors, settlement cracks of structures built in landslide areas, wood piles, gas barbeques and motor-homes and other flammables stored too close to structures, delinquent or inadequate fuel treatments).

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<sup>18</sup> The Fanita Ranch Fire Protection Plan acknowledged, "The Santa Ana winds with wind gusts of up to 60 mph blowing from the northeast/east pose significant threat from wind-blown embers to all structures within this project." Page 14.

<sup>19</sup> "Observed fire whirl behavior was both unexpected and extreme in these fires, catching many firefighters by surprise and significantly contributing to spotting up to 3/4 mile. 180-degree wind shifts proceeded fire whirls by 45 seconds to a minute." [Firefighter] "Respondents reported unusual numbers of fire whirls that ranged from several yards wide up to a 1/2 mile wide. Destructive fire whirls, those causing structural damage unrelated to fire, also were reported. In addition to appearing suddenly, large fire whirls, characterized by a jet engine noise, took in debris such as large tumbleweeds and bushes from the bottom and ejected flaming debris from top—raining embers and violently showering sparks as much as 3/4 of a mile beyond the head of the fire. In one reported case, a fire whirl entered an area that had already burned clean down to three-inch stubble and whirled across several hundred feet of burned area into unburned fuel, carrying fire the whole way and igniting the unburned fuel. Another fire whirl crossed an eight-lane freeway. Small fire whirls merged into larger ones. Some reported fire whirls moving downhill." "What we were expecting to see were fire whirls (4' to 6' tall), what we actually saw were true fire tornadoes. The fire researchers kept telling us what we were seeing was impossible and never seen before. After three days of discussion, the fire researchers started to understand that what they were expecting and what was happening was not jiving. "Division Supervisor" Southern California Firestorm 2003 Report for the Wildland Fire Lessons Learned Center, Mission Centered Solutions, December 8, 2003, page 6.





***Wind-blown embers***

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Cont.

- Vulnerability of adjacent homes and the entire development from flame impingement and radiant heat once one or more homes are ignited from embers/extreme events or human error. There remains significant fire risk of structures within 30-feet of each other to cluster burn (especially those with north to east wildland interfaces).<sup>20</sup>

<sup>20</sup> "As a type of fuel, involved structures emanated intense radiant heat. Heat levels in the street were unusually high." Southern California Firestorm 2003 Report for the Wildland Fire Lessons Learned Center, Mission Centered Solutions, December 8, 2003, page 7.





***Attic vents are vulnerable to embers within a fire tornado.***

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- Vulnerability of people outside of structures to flame impingement, radiant heat and smoke. (Individuals on foot, on motorized and un-motorized vehicles, hikers and other individuals in natural lands, individuals attempting to evacuate or reach and secure their homes, or individuals simply locked out of vacant structures because they reside in another neighborhood or are children without keys; individuals at inadequate fuel buffers on sloped sections of emergency access routes; firefighters defending structures without adequate safety zones or escape routes).

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Cluster burn example from 2003 Cedar fire. Photo by John Gibbins, SDUT.

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- Vulnerability of elderly and weak individuals within structures to smoke, stress, or loss of power.



***Cluster burn - San Diego County 2007***

O-15-18

The project site is susceptible to cluster burns and the evacuation route is subject to lethal levels of radiant heat. Clearly from a fire safety prospective, introducing residential development into this VHFHSZ is ill advised and creates a significant adverse impact. The project should be abandoned or at a minimum consolidated and reconfigured for more effective Santa Ana firestorm defense.

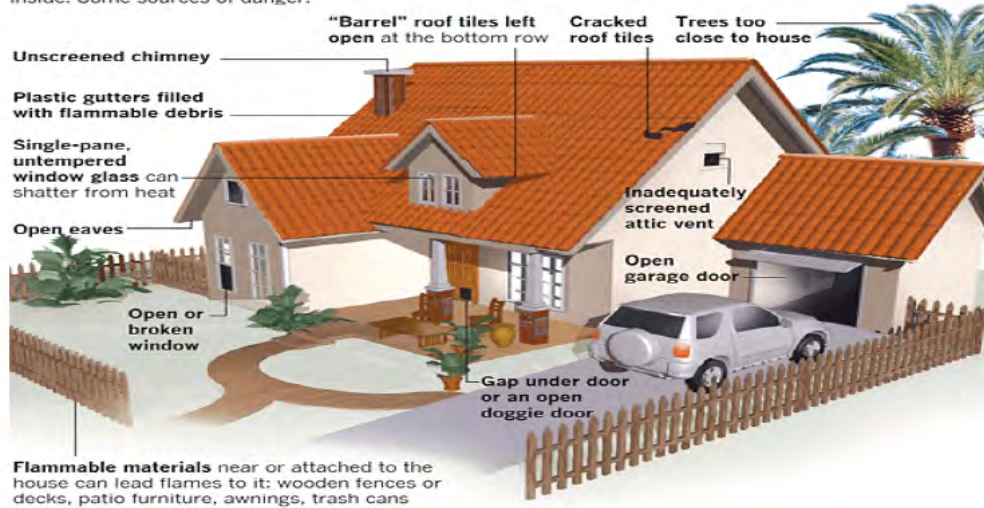




***Rudy Reyes was severely burned attempting to evacuate from the Cedar fire in 2003.***

### Illustration 1: How Fire-Resistant Homes Can Burn

Building with stucco and tile and clearing nearby brush aren't enough to protect a home from wildfires. A hail of wind-driven embers can penetrate even a fire-resistant structure and burn from the inside. Some sources of danger:



Note: For more information, visit [disastersafety.org/publications](http://disastersafety.org/publications)

Source: Times reporting. Graphics reporting by **TED ROHLICH, JOE MOZINGO and RONG-GONG LIN II**  
LORENA IRIQUEZ LOS ANGELES TIMES

The damaged or destroyed homes in Yorba Linda had many of the more traditional features that protect homes from flames and radiant heat. In some cases, these features are also effective in protecting homes from embers. However, in a wind driven fire storm, additional protection is necessary.

### Significant Adverse Impacts to Firefighter Safety

Evacuation can be treacherous even without gridlocked streets based upon when the order is given, visibility, the fires direction and rate of spread, distance from fuel loads, etc. and the timing of the decisions made to evacuate by people and authorities. Lingering residents located in topography that has higher risk can place firefighters in greater danger should they get in trouble and seek help. Fire authorities cannot force individuals to evacuate,<sup>21</sup> which can put firefighters in greater jeopardy if lingering residents find themselves in trouble and request emergency assistance.

*"Wildland urban interface fires present many challenges pertaining to evacuation. The fire spread rate is often so fast that emergency responders can only estimate the rate of spread and direction of travel. In this case, within minutes of the fire start, spotting was reported one mile down-wind from the head of the fire. Driven by winds of 40 MPH*

<sup>21</sup> Under certain circumstances evacuation may pose the greatest risk.

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Cont.

*and higher the rate of spread went from the usual estimate of acres per hour in a non wind driven fire to acres per minute.”<sup>22</sup>*

*“... law enforcement does not have the legal authority to force residents out of their homes; however, law enforcement may restrict the return of residents once they leave. Determining where and when to evacuate is often difficult. Each decision brings with it a new set of risks and benefits. The greatest risk by permitting residents to remain with their homes is the potential for loss of life.”<sup>23</sup>*

*“The Tea Fire in Montecito resulted in more than two dozen civilian injuries, two of which were critical burns received while trying to flee their residence. In 2006, in Cabazon, the Esperanza Fire resulted in four firefighter fatalities that occurred during structure protection efforts. The Cedar Fire that occurred in San Diego County in 2003 resulted in the death of fourteen civilians and a firefighter all while trying to flee or protect homes. Investigation into the citizen deaths and injuries identified one commonality: they all occurred because people decided to stay and protect their property or they evacuated too late and got caught in the fire front.”*

When land use decisions can site development away from high-risk topography, (whether its fire, flood or landslide zones) what circumstances justify placing people and firefighters at greater risk of severe and life threatening injuries? The geography of the project site and vicinity argues for avoidance. The decision to build in multiple bubbles of development intermixed with wildlands maximizes edge and the hazards to firefighters.

Firefighter fatality reports conclude that decisions to defend vulnerable structures located on high-risk topography were a primary factor in the fatalities of the Esperanza Fire and the Cedar Fire. The loss of a 19-person Granite Mountain crew in Arizona occurred when they were traveling though unburned fuel toward threatened structures at the town of Yarnell.<sup>24</sup>

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<sup>22</sup> Freeway Complex Preliminary Report to City of Yorba Linda, Orange County Fire Authority (OCFA), December 2, 2008, page 15.

<sup>23</sup> Freeway Complex Preliminary Report to City of Yorba Linda, Orange County Fire Authority (OCFA), December 2, 2008, page 14.

<sup>24</sup> Esperanza Fire Accident Investigation Factual Report, USDA-Forest Service, October 26, 2006. Novato Fire Protection District Cedar Fire Incident Recovery Report, May 26, 2004. Yarnell Hill Incident Reports, <https://sites.google.com/site/yarnellreport/>



The Esperanza report identified “Causal” and “Contributing” factors for the firefighter fatalities. The root cause of the deaths was the decision to approve and build the home in a location destined to burn. While some consider this incident an accident, it may more readily be considered a high-risk gamble that was lost. The report identified these top factors:

*“Contributing Factor 1. Organizational culture - The public (social and political) and firefighting communities **expect and tolerate firefighters accepting a notably higher risk for structure protection** on wildland fires, than when other resources/values are threatened by wildfire.” (Bold emphasis added)*

*“Causal Factor 2. The decision by command officers and engine supervisors to attempt structure protection at the head of a rapidly developing fire either underestimated, accepted, and/or misjudged the risk to firefighter safety.”*

When faced with a Santa Ana wind driven fire head rapidly approaching project homes, will firefighters be expected to defend or decline to defend threatened homes directly in the path of the fire head?<sup>25</sup>

### **Poor Land Use Decisions Exacerbate the Impact of Expectations for Firefighter Performance by Adding Unnecessary Safety Risk Sites**

Considering that “no structure in the path of a wildfire is completely without need of protection,”<sup>26</sup> more analysis needs to be provided with a focus upon firefighter safety. Firefighter escape routes and safety zones,<sup>27</sup> and their potential decisions to defend structures for the worst Santa Ana wind driven fire points of origin, time periods and worst weather conditions require analysis.

There have been at least 327 wildland firefighter fatalities in California since 1926.<sup>28</sup>

<sup>25</sup> Reference Wildland Structure Protection Standard Operating Procedure, Novato Fire Protection District, Cedar Fire Recovery Report, May 26, 2004.

<sup>26</sup> Incident Response Pocket Guide, National Wildfire Coordinating Group, PMS461 NFES 1077, January 2010, page 12.

<sup>27</sup> **Where are the safety zones on the project site?**

Butler and Cohen. Firefighter Safety Zones: A Theoretical Model Based Upon Radiative Heating. Firefighter Safety Zones: How Big Is Big Enough?

<sup>28</sup> Wildland Fire Accidents by State, National Interagency Fire Center, page 2. Wildland firefighter fatalities nationwide exceed one thousand since 1910, page 24. [http://www.nifc.gov/safety/safety\\_documents/State.pdf](http://www.nifc.gov/safety/safety_documents/State.pdf)



Because of the social and political climate associated with expectations for firefighters to defend property during wildfires, the Project's configuration relative to topography should be analyzed and the conditions that firefighters are expected to engage, decline deployment or retreat from specific portions of the Project described.

O-15-20  
Cont.

*"Wildland firefighters today are spending more hours fighting fires than ever before, and they are engaging fires of historic magnitude. The risk environment associated with wildland fire is being redefined, and firefighters too have begun to redefine their own culture as a professional endeavor."*<sup>29</sup>

After a review of wildland firefighter fatality incidents, the EIR should describe the conditions that would cause firefighters to reject assignment or retreat.<sup>30</sup> The "Lesson Learned" analyses of fire behavior and firefighter fatality incidents are relevant and available.<sup>31</sup>

### **An Alternative that Acknowledges and Addresses High Fire Risk Topography is Needed**

O-15-21

The Project configuration fails to incorporate feasible land use design features to reduce fire risk. If a Project is to be considered, it should be reconfigured with a new Alternative.

O-15-22

More lots adjacent to high-risk topographic features should be replaced with parks. There are a number of interior parks that could be consolidated to the exterior of the Project to increase the buffer to homes and provide firefighters potential anchor points for suppression tactics that could be implemented without being slowed by the private yards oriented toward wildlands. More streets should be placed on the perimeter of homes adjacent to wildlands to act as anchor points for suppression tactics and better insulate structures [place the front yards adjacent to natural lands instead of the back yards]. Alleys that allow for ready fire access and a better facilitation for evacuation should separate the backyards of homes. Cul-de-sacs should be eliminated throughout the Project to allow for increased access and evacuation.

<sup>29</sup> Trends in Wildland Fire Entrapment Fatalities...Revisited, James R. Cook, National Wildland Firefighters Association, February 2013.

<sup>30</sup> Reference Freeway Complex Fire Incident Narrative – Map 4 Corona Fire Engine 5—Near Miss Entrapment, Freeway Complex Fire After Action Report, OCFA, Pages 31 & 47.

<sup>31</sup> <http://www.youtube.com/user/WildlandFireLLC?feature=watch>



O-15-22  
Cont .

Homes directly on the wildland interface should be on larger lots to increase the space between home structures to a minimum of thirty-feet thereby reducing the vulnerability of homes to cluster burn. Homes within 30 feet of each other have significantly greater potential to ignite each other. Homes/lots should be oriented to minimize garage doors, large windows and other openings on the north to east interface with Santa Ana winds. Functional evacuation routes and safety zones for residents and firefighters should be designed and incorporated.



***Convective Heat / Fire Whirls Pose Extreme Danger***

## Significant Adverse Impacts to Water Supply

O-15-23 Governor Jerry Brown just issued an Executive Order B-29-15 to reduce urban water use by 25% due to severely declining water supplies and extended drought.<sup>32</sup> This is the first mandatory water restriction issued in California history and requires a 25% reduction from the amount of urban use in 2013. The Governor's Order is significant new information under CEQA that requires analysis and revision of water supply documents and requires evaluation of how the project can reduce its projected demand by at least 25%. The EIR needs to be re-circulated with analysis of the project's compliance with this requirement.

O-15-24 The project "Residential Water Conservation Plan / Appendix VI" is inadequate as it falls 15% short of the Governor's Order.<sup>33</sup> How will the project reduce its projected demand for water by a minimum of 25%? How much lawn and ornamental landscaping is in the landscape plan? [S. 3] How much irrigation with potable water of ornamental turf on public street medians is in the landscape plan? [S. 6] How much spray irrigation is in the landscape plan? [S. 7] Does the project incorporate grey--- water systems? Does the project incorporate rainwater capture systems into building design? Does the project incorporate use of reclaimed water?

O-15-25 Appendix VI also starts from a highly-elevated baseline for residential water use disqualifying the analysis. Appendix VI assumes 500 gallons/day/household.<sup>34</sup> Households in the Sweetwater Authority water district use about 300 gallons/day/household in the four hottest months of the year.<sup>35</sup> 300 gallons/day/household is the maximum baseline to cut by a minimum of 25% with tangible, calculable conservation measures.

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<sup>32</sup> Executive Order B-29-15, Section 2, issued April 25, 2015.

[http://gov.ca.gov/docs/4.1.15\\_Executive\\_Order.pdf](http://gov.ca.gov/docs/4.1.15_Executive_Order.pdf)

<sup>33</sup> "The proposed Project's total estimated average potable water demand is 1,418,918 gallons per day, or approximately 1,590 acre-feet per year as shown in Table 3.7-2...Implementation of the Residential Water Conservation Plan would reduce total average water consumption to 1,272,200 gallons per day, or about 1,425 acre-feet per year." DSEIR 3.7-11.

<sup>34</sup> "Otay Ranch Resort Village Residential Water Conservation Plan – Appendix VI", page 2.

<sup>35</sup> Range of 74-77 gallons per capita multiplied by four residents = 296 to 308 gallons/household. Data is for the Sweetwater District gathered by the State Water Resources Control Board for June-September 2014. Deborah Sullivan Brennan, "Rancho Santa Fe tops water-use list", SDUT, November 6, 2014.

<http://www.utsandiego.com/news/2014/nov/05/environment-water-use-home/>



The Governor's Order states, "new expedited actions are needed to reduce harmful impacts from water shortages." Considering that the Order applies to the actual level of urban demand in our region during 2013, a recirculated EIR needs to calculate how much actual regional use below the 25% mandate would be required before the additional demand from the project could be added and still allow the region to meet the 25% cut in absolute urban demand required by the Governor's Order. The project should be delayed until the region meets the level of demand reduction that allows the project demand to be added and then still meet the 25% reduction of the Governor's Order. Both the San Diego County Water Authority<sup>36</sup> and the Otay Water District should meet the 25% urban reduction ordered before proceeding with a modified project. Without adopting this measure with additional measures to reduce projected project demand by 25%, the project has a significant adverse impact upon water supply.

**Executive Order B-29-15 Excerpt:**

*WHEREAS California's water supplies continue to be severely depleted despite a limited amount of rain and snowfall this winter, with record low snowpack in the Sierra Nevada mountains, decreased water levels in most of California's reservoirs, reduced flows in the state's rivers and shrinking supplies in underground water basins; and*

*WHEREAS the severe drought conditions continue to present urgent challenges including: drinking water shortages in communities across the state, diminished water for agricultural production, degraded habitat for many fish and wildlife species, increased wildfire risk, and the threat of saltwater contamination to fresh water supplies in the Sacramento-San Joaquin Bay Delta; and*

*WHEREAS a distinct possibility exists that the current drought will stretch into a fifth straight year in 2016 and beyond; and*

*WHEREAS new expedited actions are needed to reduce the harmful impacts from water shortages and other impacts of the drought; and*

*WHEREAS the magnitude of the severe drought conditions continues to present threats beyond the control of the services, personnel, equipment, and facilities of any single local government and require the combined forces of a mutual aid region or regions to combat; and*

<sup>36</sup> There was 545,322.4 acre-feet of potable water use by SDCWA service area in 2013. <http://www.sdcwa.org/water-use>



O-15-26  
Cont.

*WHEREAS under the provisions of section 8558(b) of the Government Code, I find that conditions of extreme peril to the safety of persons and property continue to exist in California due to water shortage and drought conditions with which local authority is unable to cope;*

### **Actual Water Supplies**

O-15-27

The Otay Water District stated that they “intend to have sufficient, reliable supplies to serve demands.”<sup>37</sup> There is a difference between actually having those supplies and intending to have them as California residents who have already experienced their taps to run dry have found out. Table 7 of the Water Supply Assessment and Verification indicates that most of the anticipated additional supply will come not from new water sources but from an “Additional Conservation Target.” Thus, Otay Water District estimates that additional conservation savings of 7,447 acre-feet/year (in 2020) to 20,557 acre-feet/year (in 2035) are required to balance supply with demand under “Normal Year Conditions”.<sup>38</sup> There is no evidence in the Draft EIR or Water Supply Assessment and Verification that the district is likely to meet these increasingly ambitious conservation targets; the 2035 conservation target is 42% over the amount of actual water the Water Authority expects to provide, and would constitute over 25% of the district’s expected demand. Historical experience in California suggests diminishing returns from conservation measures, but the EIR implausibly assumes the opposite – that conservation measures will be increasingly effective over time. It takes optimistic paper water projections to meet demand under normal conditions, however climate change makes relief from heat and drought unlikely. Thus, meeting the optimistic projection is also unlikely.

O-15-28

The EIR also unrealistically assumes that imported water supplies will be steady or increasing. To the contrary, significantly depleted actual water supplies in statewide reservoirs (now under 60% of capacity) and water supplies in local reservoirs (three are over 90% depleted) support the Governor’s finding for emergency actions and real cut backs.<sup>39</sup>

<sup>37</sup> DEIR Appendix C18, pages 3, 23, 58.

<sup>38</sup> Ibid., page 56.

<sup>39</sup> State Reservoir levels can be found at <http://cdec.water.ca.gov/reservoir.html>

San Diego Reservoir levels are recorded at

<http://www.sandiego.gov/water/recreation/levels.shtml>

Coronado River basin storage has now dwindled to 47% of system capacity.

<http://www.usbr.gov/lc/region/g4000/weekly.pdf>

Also see <http://www.usbr.gov/lc/riverops.html>



## Water Levels

The City of San Diego's Water Levels are updated weekly, April 27, 2015.



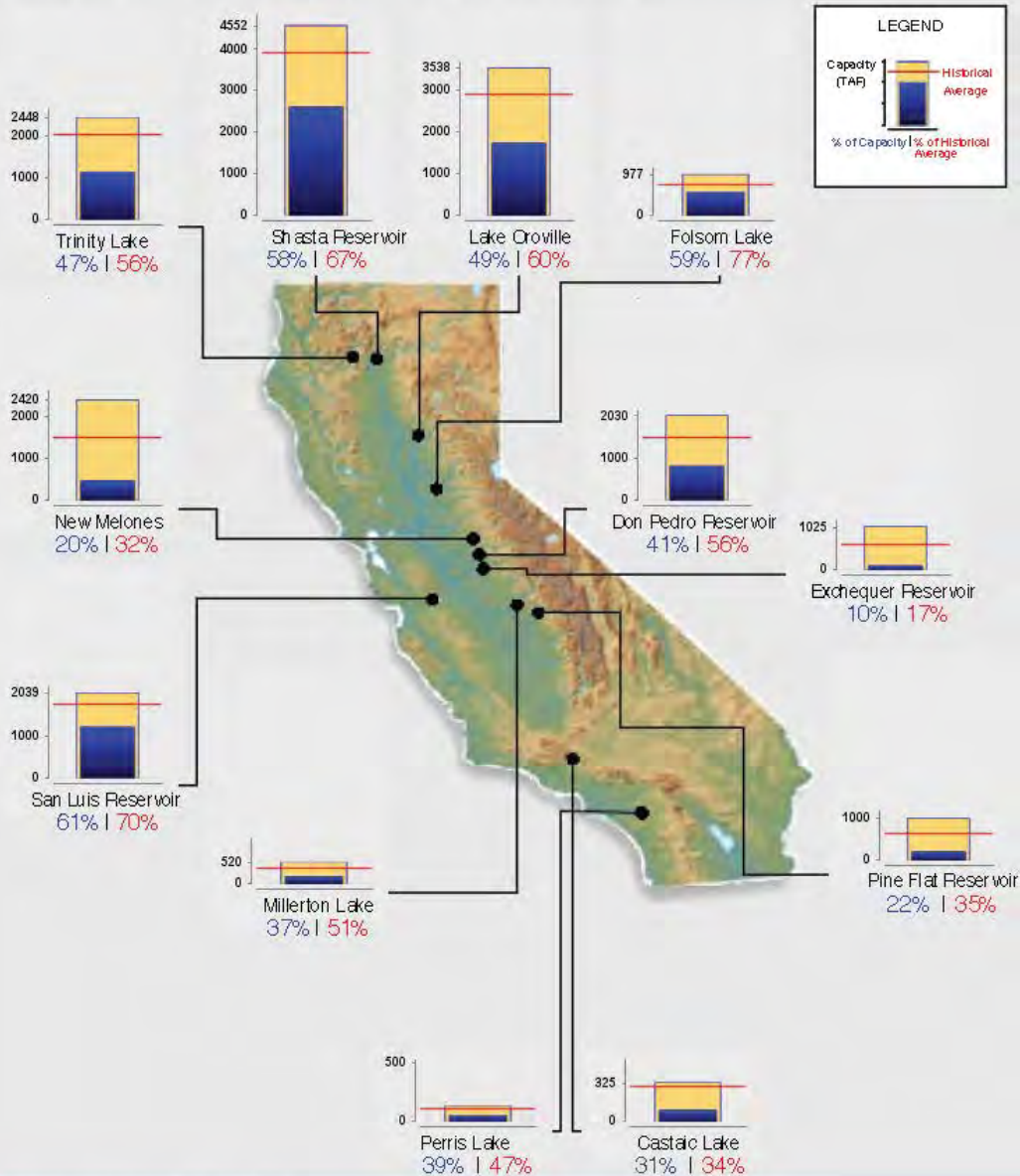
Reservoir	Depth When Full	Current Depth	Storage Capacity	Current Storage	Percent Full	Spill MGD
Barrett	160.88 ft	75.24 ft	34,805.5	1,958.8	5.6	0
El Capitan	197.00 ft	124.78 ft	112,806.9	32,101.0	28.5	0
Hodges	115.00 ft	92.12 ft	30,251.0	11,620.4	37.9	0
Miramar	114.00 ft	106.90 ft	6,682.4	5,591.5	83.7	0
Morena	157.00 ft	81.85 ft	50,694.0	1,624.6	3.2	0
Murray	95.00 ft	91.20 ft	4,684.2	4,075.1	87.0	0
Lower Otay	137.50 ft	126.96 ft	49,848.9	37,015.8	74.3	0
San Vicente	306.00 ft	184.34 ft	249,358.0	84,034.9	33.7	0
Sutherland	145.00 ft	63.48 ft	29,508.1	2,478.3	8.4	0



# Reservoir Conditions

Ending At Midnight - May 5, 2015

## CURRENT RESERVOIR CONDITIONS



Graph Updated 05/06/2015 12:15 PM



California and the western United States are using far more water than natural processes are able to replenish. California is now mining its groundwater in an attempt to compensate for the drought, which is resulting in permanent depletion, subsidence and closure of wells that have become too contaminated for consumption.<sup>40</sup>

O-15-28

The state of the Colorado River basin (a supply source for Southern California) is similarly bleak. Lake Mead is at the lowest level since it was filled in the 1930's standing at 1,079 feet in April 2015.<sup>41</sup> When Lake Mead falls below 1,000 feet, the southern Nevada Water Authority will "lose capacity to pump water to serve the municipal needs of seven in 10 people in the state of Nevada."<sup>42</sup> NASA's satellite data has revealed that groundwater levels are falling even faster than Colorado River basin reservoirs.<sup>43</sup> NASA data on groundwater depletion in California dependent watersheds is significant new information that has not been considered in the Draft

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<sup>40</sup> Groundwater provides approximately 40% of California's water supply in an average year and has risen to approximately 60% of supply during the drought years in some regions of the state. For the first nine months of 2014, approximately 3,000 new wells were drilled in California. More than 650 new wells were reported drilled in the following California counties: 350, Fresno and Tulare; 200, Merced, Over 100, Butte, Kern, Kings, Shasta and Stanislaus. "Subsidence is occurring in many groundwater basins in the state, especially in the southern San Joaquin River and Tulare Lake hydrologic regions. Due to ongoing decline of groundwater levels, areas with a higher potential for future subsidence are in the southern San Joaquin, Antelope, Coachella, and western Sacramento valleys."

State of California Natural Resource Agency & Department of Water Resources, Public Update for Drought Response, November 2014, pages vii-viii, p. 9, 12.

[http://www.water.ca.gov/waterconditions/docs/DWR\\_PublicUpdateforDroughtResponse\\_GroundwaterBasins.pdf](http://www.water.ca.gov/waterconditions/docs/DWR_PublicUpdateforDroughtResponse_GroundwaterBasins.pdf)

Ky Plaskon, Capital Public Radio, "Contaminated Groundwater Wells Close in South Lake Tahoe," November 12, 2014. <http://www.caprado.org/36361>

Ed Joyce, Capital Public Radio, "Recent Rain Not Enough To Ease California Drought," December 15, 2014. <http://www.caprado.org/37325>

<sup>41</sup> US Department of the Interior, Bureau of Reclamation, "Lake Mead At Hoover Dam," Elevation, <http://www.usbr.gov/lc/region/g4000/hourly/mead-elv.html>

<sup>42</sup> Michael Wines, New York Times, "Colorado River Drought Forces a Painful Reckoning for States," January 5, 2014. Statement of John Entsminger, Senior Deputy Manager of the Southern Nevada Water Authority.

<http://www.nytimes.com/2014/01/06/us/colorado-river-drought-forces-a-painful-reckoning-for-states.html>

<sup>43</sup> Sarah Jane Keller, High Country News, Colorado River Basin groundwater levels drop even faster than reservoirs, July 30, 2014. <http://www.hcn.org/blogs/goat/new-study-shows-dramatic-groundwater-decline-in-the-colorado-river-basin>



EIR or by the entities the Draft EIR bases its conclusions upon. Specifically, those agencies that issue service letters to developers based upon infrastructure capacities instead of actual water supplies.<sup>44</sup>

O-15-28  
Cont.

*"...in the western United States, we use far more water than what is renewable by natural precipitation and snowmelt. Our rivers and reservoirs are simply no longer enough. We rely on groundwater far more than we are ready to admit...Without a regulatory framework for jointly managing surface and groundwater resources as 'one water,' groundwater levels will continue to fall, basin water managers will be challenged to meet future allocation commitments, and the water security of the western United States will be seriously threatened."<sup>45</sup>*

### **Significant Adverse Impacts to Lower Otay Lake Reservoir**

O-15-29

Impacts to Lower Otay Lake Reservoir are significant and inadequately mitigated. The Draft EIR acknowledges [1.0-18] that runoff from the development would eventually be discharged into the reservoir that supplies municipal drinking water. Thoughtful planning avoids placing development in watersheds that provide drinking water and especially locating development immediately adjacent to the primary water body. In contrast, the City of Seattle purchased the entire watershed that provides its potable water supply and disallows development within that watershed to assure clean drinking water.

O-15-30

Otay Ranch development footprint should be dramatically reduced (more consistent with Alternative G), with all runoff captured, treated and reused on site. A mixed-use development with public spaces and a population base sufficient to support village commercial to reduce vehicle trips should be designed. Ideally, that would be accomplished in part by concentrating parking for all private vehicles in a few structures with the remainder of the residential development being accessed by

<sup>44</sup> NASA JPL, "GRACE Reveals Major Groundwater Loss in California's Heartland," December 14, 2009.

<http://grace.jpl.nasa.gov/news/index.cfm?FuseAction=ShowNews&NewsID=35>  
Stephanie L. Castle, UC Irvine, et al. Groundwater depletion during drought threatens future water security of the Colorado River Basin, August 29, 2014.

<http://onlinelibrary.wiley.com/store/10.1002/2014GL061055/asset/grl51963.pdf;jsessionid=3D724D7991EC1ED5AAD4D9322C9CA9E5.f04t01?v=1&t=i3pwm66y&s=fca406a9b1cc009bba34bedb600eb7459a0070de>

<sup>45</sup> Jay Famigletti, UC Irvine Water Currents and National Geographic, "How the West was Lost," July 24, 2014. <http://voices.nationalgeographic.com/2014/07/24/how-the-west-was-lost/>



O-15-30  
Cont. | pedestrian and service vehicle routes only. Otherwise, the project becomes another sprawl development with an additional significant adverse impact upon the lake as a domestic water supply.

### **Avoidable Significant Adverse Impacts to Biological Resources**

**CEQA requires that public agencies not approve “projects as proposed if there are feasible alternatives or mitigation measures available which would substantially lessen the significant effects of such projects.”** This letter includes a description of such mitigation measures.

O-15-31 | Alternative G (identified as the biologically superior alternative) is just one example of how impacts to the most sensitive and endangered species can be avoided. Alternative G or a modified version of Alternative G should be selected if a project is going to be developed. Furthermore, the geography of the site (located adjacent to a municipal drinking water supply and on the opposite/exposed side of a natural barrier to Santa Ana wind driven firestorms) argues that the highest and best use for this site is the beneficial uses of minimally disturbed natural resource lands (its present use).

Fire and Land Use experts have stated that we need to stop expanding the wildland-urban-interface within the most hazardous fire vulnerable topography.

*“Preventing homes from being built in rugged fire prone zones should be a priority. Right now, the focus has been on clearing a defensible space around homes. It’s becoming real clear that that’s not going to solve our problem.”*<sup>46</sup> Dr. Jon Keeley

### **Avoidable Impacts to Federally Listed Species and MSCP “Covered” Species**

O-15-32 | The Draft EIR does not consider the degeneration of habitat within the Multiple Habitat Planning Area (MHPA) since the approval of the MSCP in 1997 and does not consider the actual status of the species the project would impact prior to making the unsubstantiated conclusion, *“the Project is not expected to reduce the likelihood of survival and recovery of these species.”*<sup>47</sup>

<sup>46</sup> “San Diego’s Fire Readiness Called into Question” Fox 6 News fire forum coverage, November 27, 2007.

<sup>47</sup> [DEIR at 2.3-32]. *“Criterion J: The project would reduce the likelihood of survival and recovery of listed species in the wild. The Project would result in direct impacts to four species listed by USFWS and/or CDFW: San Diego thornmint, San Diego fairy*



In addition, the Draft EIR does not consider the failure to implement the plan effectively with a funding mechanism (the regional funding mechanism intended to be established within 3 years of plan approval has never been voted on)

The biophysical setting of the region has changed dramatically since 1997, yet land use policy [including that used to prepare this draft EIR] has not acknowledged any of these changes. **The assumptions about the Multiple Species Conservation Plan (MSCP) and its implementation that were made when the covered species list was approved are not valid.** The regional funding mechanism to implement the MSCP has never been approved. Catastrophic fires in 2003 and 2007 have been followed by type conversion with invasions of non-native species. Restoration, management and monitoring efforts for MHPA lands and species populations are largely invisible. Jurisdictions such as Santee have not completed or funded subarea plans. MHPA and other Habitat Conservation Plan (HCP) lands in the entire region are at risk from climate change induced extreme weather and drought. Edge effect impacts to natural lands and species have taken a greater toll than anticipated by the MSCP “covered species” list. Project impacts and the adequacy of mitigation need to be considered within the context of changes circumstances on the ground. The Draft EIR fails to do so and thus, its analysis for the significance threshold of impacts to listed species is fatally flawed.

O-15-32  
Cont.

The Draft EIR asserts, *“Impacts to the 19 remaining County Group I species and CDFW SSC are considered less than significant.”* [2.3-21]

The Burrowing Owl provides but one unlisted example of the decline in MSCP “covered species.” The “extensive population declines” of the burrowing owl are documented by the California Department of Fish and Wildlife with its December 17, 2012 letter, including the “Status of the Burrowing Owl” report (Ex. 39). A more than 70% decline in the population has accelerated and resulted in extirpation and near extirpation in numerous counties statewide, including San Diego. The report notes that **MSCP Table 3.5 rationale for covering the burrowing owl is no longer applicable. It has been extirpated from all MSCP Table 3.5 areas listed “with the exception of Otay Mesa burrowing owls.”** The plan concludes, “if a plan is not implemented soon, **extirpation of the Burrowing Owl in San Diego County is likely imminent.**”

O-15-33

The Wildlife Agencies (U.S. Fish and Wildlife Service and California Department of Fish and Wildlife) stated:

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*shrimp, Quino checkerspot butterfly, and coastal California gnatcatcher (see Criterion A under Section 2.3.2.3). However, the Project is not expected to reduce the likelihood of survival and recovery of these species.”*



*"There has been a **dramatic reduction** in resident breeding, as well as wintering burrowing owls, throughout coastal southern California. Otay Mesa is one of the few remaining areas of the County where a breeding burrowing owl population remains; but, many of that population's occupied locations, which are distributed across the Mesa, are susceptible to future urban development. The burrowing owl is a covered species in the City's MSCP Subarea Plan (SAP), and the **continued coverage of this species depends on the implementation of a comprehensive conservation strategy** designed to maintain viable populations of owls on Otay Mesa."*

Karen A Goebel & Stephen Juarez, USFWS & CADFG, 8/20/2010 (emphasis added)

O-15-33  
Cont.

The project site contains 190-acres of suitable habitat for burrowing owls, yet that habitat is unoccupied and the last documented occupation was in year 2000. [DEIR 2.3-24, 25] The owl's absence provides an indication that burrowing owl habitat has already been reduced too far to sustain a population without an ongoing intervention program. Yet, the project proposes to destroy 137 acres (72%) of that habitat (including the "K6" vernal pool habitat near the previous occupied siting)[DEIR 2.3-64] without implementing a program to reestablish and sustain the burrowing owls on the remnant 53 acres. Without avoiding the suitable owl habitat and implementing a program that includes "public education, captive breeding and release, habitat protection, modification and management, monitoring and research" a significant unmitigated avoidable impact to burrowing owls remains from this project that has not been considered by the EIR. Furthermore, the status of "covered species" that allows "incidental take" is earned by maintaining the status described and promised by MSCP Table 3.5. The failure to perform the MSCP obligations for burrowing owls and other sensitive species "covered" on MSCP Table 3.5 in similar decline should leave all of those species uncovered and subject to greater avoidance and mitigation requirements.

**The MSCP has failed to establish a regional funding mechanism leading to a corresponding failure to establish baseline population numbers for species and monitor them for changes that would trigger specific management directives.**

O-15-34

The lack of an effective funding mechanism means that the MSCP cannot be relied on to address the project's impacts to covered species. The inadequate funding mechanism was a basis for the invalidation of the City of San Diego's permit covering vernal pool species. See *Southwest Center for Biological Diversity v. Bartel*, 470 F. Supp. 2d 1118, 1156-57 (S.D. Cal. 2006).



**“LACK OF ADEQUATE FUNDING FOCUSED ON MSCP MONITORING AND MANAGEMENT**

*The MSCP, along with other Natural Community Conservation Plans (NCCPs), has been criticized for failing to identify secure funding mechanisms for plan implementation. This is especially true for sustained long-term funding for monitoring and management of species and habitats within assembled preserve systems. If funding sources are not identified and strategically applied to carry out monitoring and management of preserves, these plans are in danger of failing to provide for conservation of regional natural resources as originally envisioned and touted”.<sup>48</sup>*

*“In 2001, the Conservation Biology Institute (CBI) reviewed and refined the BMP. CBI concluded that there were inadequate data to recommend updated protocols, though they did provide a new framework for habitat monitoring. Neither the original monitoring plan nor CBI’s revisions were ever widely implemented, and debate remains on how to meet the monitoring and management needs of the MSCP (Hierl et al 2005).”<sup>49</sup>*

*“Monitoring communities is important and necessary given the MSCP’s primary goals:*

- Conserve the diversity and function of the ecosystem through the preservation and adaptive management of large blocks of interconnected habitat and smaller areas that support rare vegetation communities (e.g. vernal pools).*
- Conserve specific species at levels that meet the take authorization issuance standards of the federal Endangered Species Act (ESA) and California’s Natural Community Conservation Planning Act (NCCPA).<sup>50</sup>*
- Existing data sets collected prior to the Draft San Diego Multiple Species Conservation Program Animals Species Monitoring Protocols (Winchell et al. 2008) have significant problems (lack of metadata, poor statistical power, small sample frame, protocols have varied over time) and often can only be utilized to show where a species is present rather than status and trend of the species or for informing or evaluating management actions (Hierl et al. 2005)*
- Analysis of the monitoring data has been inconsistent and/or lacking (Hierl et al. 2005)”<sup>51</sup>*

<sup>48</sup> MSCP M&M Dahlem Workshop - Monitoring & Management in SD MSCP, Ex. 57.

<sup>49</sup> MSCP M&M Dahlem Workshop, page 17.

<sup>50</sup> MSCP M&M Dahlem Workshop, page 17.

<sup>51</sup> MSCP M&M Dahlem Workshop, page 11.



## Impediments to Monitoring and Adaptive Management

Table 8: Comprehensive list of impediments.

#	Description	Priority, Solvability
1	Lack of an approved strategic plan, based on science, for reserve-wide (and ultimately ecoregional) monitoring and management.	High priority and potentially solvable
2	Lack of a centralized database and information system that allows access to data and products that can inform MSCP monitoring and management.	
3	Funding challenges, such as inadequate funding levels, systems by which funding is allocated internally and externally to management organizations, and restrictions on uses imposed by funders.	
4	Poorly defined roles and responsibilities of participants in a leaderless, de-centralized cooperative network, which leads to poorly-defined decision-making processes.	

O-15-34  
Cont.

Without establishing MSCP species baseline population numbers and locations and monitoring their trends, area specific management directives to address habitat/species deterioration is rarely prescribed, funded, or implemented. Species trends are largely ignored. It has become standard practice for development planners to ignore the on the ground realities affecting species - like catastrophic fires and severe drought. Planner and consultant assumptions considering paper assurances of “coverage” as sufficient to continue impacting species and mitigating with standard mitigation ratios are significantly errant.

### Significant Adverse Impacts to Quino Checkerspot Butterfly Remain

The Draft EIR provides that it addresses impacts to the Quino checkerspot butterfly, a federally-listed endangered species that is not a covered species under the MSCP, as follows:

O-15-35

*“Cumulative impacts to Quino checkerspot butterfly were evaluated by reviewing past, present, and future projects within the MSCP Subarea Plan South County Segment that included impacts to Quino checkerspot butterfly... [the project] must contribute to the achievement of planning goals for the MSCP, including preservation of sensitive resources. The Otay Ranch Resort Village, as it is proposed in this document, especially meets that goal, since it was designed to minimize impacts to Quino checkerspot butterfly.” [DEIR 2.3-34, 35]*



O-15-35  
Cont .

The Draft EIR process of totaling acres destroyed and avoided does not provide sufficient information and analysis of species status to presume that impacts to Quino are adequately mitigated. Furthermore, the project heavily impacts Quino habitat, even though Alternative G demonstrates that greater avoidance is possible. There are too many avoidable locations containing Quino host plants impacted [DEIR Figure 2.3-11] and too much Quino Critical Habitat impacted [Figure 2.3-12] to ensure viability of the Quino population. The fragmentation of habitat introduced by all alternatives (with the potential exception of Alternative G) is a significant adverse impact that has not been adequately mitigated. The un-fragmented habitat on the project site serves as an essential regional foundation link for the species - *"...geographic features suggests that habitat in the Otay Lakes area is a regional keystone with regards to Quino checkerspot butterfly landscape connectivity...a confluence of landscape connectivity for all populations in the Southwest Habitat Region (Figure 9)... Any activity resulting in habitat fragmentation or removal of host or nectar plants from habitat reduces habitat quality and increases the probability of extinction of the Quino checkerspot butterfly...Protection of landscape connectivity in a configuration that assures metapopulation resilience is essential."*<sup>52</sup>

The Quino Checkerspot Butterfly Recovery Plan states:

*"Quino checkerspot butterfly populations appear to have been reduced in number and size by more than 95 percent range-wide, primarily due to direct and indirect human impacts including habitat loss and fragmentation, invasion of nonnative plant species, and disrupted fire regimes (D. Bauer, D. Murphy, and M. Singer, pers. comm.)."*<sup>53</sup>

*"Current Status: ... there is no evidence that the long-term decline due to human impacts has slowed (see section I.C.5 below, Metapopulation Resilience). Although large portions of occupied habitat are under public ownership, few, if any, known population distributions (preliminarily delineated in this document as occurrence complexes, further defined below) are entirely protected. There are no populations currently known to be resilient. Destruction and degradation of occupied habitat continues throughout the range of the Quino checkerspot butterfly, and some level of ongoing degradation exists in all occupied habitat...Immediate protection and management of the habitats that support the species, initiation of a captive propagation program, and development of the monitoring scheme and research agenda described in this recovery plan will be necessary to prevent extinction of the*

<sup>52</sup> RECOVERY PLAN FOR THE QUINO CHECKERSPOT BUTTERFLY (Euphydryas editha quino), Region 1, U.S. Fish and Wildlife Service, Portland, Oregon, August 11, 2003, pages 51, 55, 72.

<sup>53</sup> Ibid., page 1.



Quino checkerspot butterfly.”<sup>54</sup>

The project would further the grim trend toward Quino extinction as it proposes to destroy 508 acres or about 35% of the Quino habitat on site. [DEIR 2.3-76, Figure 2.3-11 & 12] The project fails to initiate a captive propagation program, it fails to develop a monitoring scheme and research agenda supplemental to a propagation program, it fails to reduce habitat fragmentation and fails to adequately restore and enhance the ungraded habitat on site.<sup>55</sup> The project defers preparation and adoption of a Quino habitat management plan and will abandon the commitment to prepare a plan if the County adopts an undefined Quino amendment to the MSCP. The project conflicts significantly with the recovery actions necessary to prevent the extinction of the Quino checkerspot butterfly.

O-15-35  
Cont.

The project also fails to develop a management plan consistent with recovery criteria listed below:

*“The final management program for a particular occurrence complex or metapopulation should be preceded by:*

- Creation of detailed maps of habitat patches and dispersal areas on a spatial scale that captures the essential landscape connectivity and known distribution of each populations or occurrence complex.*
- Modeling of metapopulation dynamics for each occurrence complex.*
- Assessment of varying restoration needs within recovery units and habitat patches.*
- Identification of significant mortality sinks, such as high-traffic roads.*
- Design of management tools and practices to reconstruct essential landscape connectivity and prevent dispersal into mortality sinks.*

<sup>54</sup> Ibid., page iii. Evidence of resilience is demonstrated if a decrease in the number of occupied habitat patches over a 10- to 20-year period within an occurrence complex (or population distribution when delineated) is followed by increases of equal or greater magnitude.” Page v.

<sup>55</sup> *“The need to protect habitat from indirect effects of nearby or intruding development is evidenced by the apparent extirpation of local populations in the Lake Hodges and Dictionary Hill areas, where Quino checkerspot butterflies have not been recorded since the 1980's (Figure 2), despite focused efforts to find them (Caltrans 2000; City of San Diego 2000; Faulkner 1998; G. Pratt, pers. comm. 2001; D. Faulkner and K. Williams, pers. comm.). The Lake Hodges and Dictionary Hill butterfly population sites were within large, primarily undeveloped areas with historical records indicating long-term stable occupancy prior to isolation by development (Figure 2). Habitat suitability may be conserved by preservation of undeveloped land between areas of development and habitat or by costly perpetual management to control human traffic, prevent repeated nonnative species invasions, and other measures such as augmentation of butterfly populations.” Ibid., page 35.*



### **Avoidable Significant Adverse Impact to Vernal Pools**

How does proposed project vernal pool mitigation contribute to the conservation and **recovery** of vernal pool species? Our conclusion is that they do neither. The project does not contribute to conservation and recovery of vernal pool species; the project contributes to the further decline of endangered vernal pool species by destruction of occupied vernal pools, which will result in prohibited “take” of federally endangered species.

O-15-36

The project’s vernal pool impacts are avoidable without significant impairment of the project’s objectives. Because the proposed project and other alternatives would result in significant, unmitigated impacts to vernal pool species, the project objectives should be refined to be consistent with feasible alternatives that avoid vernal pool impacts.

San Diego County Biological Mitigation Ordinance (BMO) states, “vernal pools and their watersheds in naturally occurring complexes and wetlands shall be avoided to the maximum extent practicable.”<sup>57</sup> It is practicable for the project to avoid all vernal pools, yet it fails to do so. By impacting vernal pools that are avoidable, the project violates the San Diego County BMO. The adverse impacts to vernal pools are significant and avoidable therefore, the project also violates CEQA and requires modification.

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<sup>56</sup> Ibid., page 72.

<sup>57</sup> San Diego County Biological Mitigation Ordinance, Pages 11-14.

SEC. 86.507. SPECIES-BASED MITIGATION...(2) Sensitive Animal Populations.

a) Rare, Narrow, Endemic Animal Species. Impacts to Rare, Narrow Endemic Animal Species Within the MSCP subarea (Attachment D of Document No. 0769999 on file with the Clerk of the Board) shall be avoided to the maximum extent practicable. Avoidance requirements shall meet any species specific requirements set forth in Table 3-5 of the MSCP Plan including any applicable limitations on clearing of occupied habitat. Where complete avoidance is infeasible, projects shall be designed to avoid any significant reduction in species viability.

(3) Vernal Pools. Impacts to vernal pools and their watersheds in naturally occurring complexes and wetlands shall be avoided to the maximum extent practicable.



The avoidable impact to a federally listed vernal pool species is a violation of the Endangered Species Act and conflicts with the "Recovery Plan for Vernal Pools of Southern California".

Why isn't the Draft EIR consistent with the following Recovery Criteria within the "Recovery Plan for Vernal Pools of Southern California" 1998?

*"Recovery Criteria:*

*Reclassification to threatened status may be considered for Eryngium aristulatum var. parishii, Pogogyne abramsii, , Pogogyne nudiuscula, Orcuttia californica; San Diego and Riverside fairy shrimp; and the long-term conservation of Navarretia fossalis, a species proposed as threatened, will be assured when the following criteria are met:*

*1. The following conditions must be met to maintain the current status of Navarretia fossalis, Eryngium aristulatum var. parishii, Pogogyne abramsii, , Pogogyne nudiuscula, Orcuttia californica; San Diego and Riverside fairy shrimp in order to maintain genetic diversity and population stability of the listed species and other sensitive species:*

*- Existing vernal pools currently occupied by Orcuttia californica, Pogogyne nudiuscula, and Riverside fairy shrimp and their associated watersheds should be secured from further loss and degradation in a configuration that maintains habitat function and species viability;...*

*- Existing vernal pools and their associated watersheds located on Stockpen soils (Otay Mesa) should be secured from further loss and degradation in a configuration that maintains habitat functions and species viability, to provide for the recovery of species restricted to this soil type (i.e., Pogogyne nudiuscula; and*

*- Remaining vernal pools and their associated watersheds contained within the complexes identified in [Figure]...4 must be secured in a configuration that maintains habitat function and species viability (as determined by prescribed research tasks)*

*2. The vernal pools and their associated watersheds contained within the complexes identified in [Figure]...5 are secured in a configuration that maintains habitat function and species viability (as determined by recommended research).*

*3. Secured vernal pools are enhanced or restored such that population levels of existing species are stabilized or increased*

*4. Population trends must be shown to be stable or increasing for a minimum of 10 consecutive years prior to consideration for reclassification. Monitoring should continue for a period of at least 10 years following reclassification to ensure population stability.*

*Delisting of each of the species is conditional on the downlisting criteria shown above, improvement (stabilized or increasing population trends) at all*

O-15-36  
Cont .



*currently known sites: restoration protection, and management of the minimum habitat area and configuration needed to ensure long-term viability; and establishing historic but locally extirpated species populations when needed to ensure viability.*

O-15-36  
Cont.

**Actions Needed:**

1. *Conduct surveys and research essential to the conservation of species.*
2. *Secure the existing vernal pools and their associated watersheds.*
3. *Where necessary reestablish vernal pool habitat to the historic structure*
4. *Manage and monitor habitat and listed species."*

The project should be designed to be consistent with the recovery plan goals presented above.

O-15-37

The Draft EIR claims the project "would provide for increased habitat for San Diego fairy shrimp." The claim fails to consider issues associated with disturbance, edge effects, restoration/creation attempts that increase the risk of hybridization spreading to areas that were once sufficiently buffered from development to maintain ecosystem functions and values. The rapid growth in human caused hybridization of San Diego fairy shrimp habitat has not been considered. Project activities and long-term edge effects remain significant adverse environmental impacts.

O-15-38

Our objection to replacing natural vernal pools by creation is supported by the Federal Court ruling of Judge Rudi Brewster in *Southwest Center for Biological Diversity v Bartel*. 470 F. Supp. 2d 1118, 1127 (S.D. Cal. 2006). Judge Brewster stated:

*Vernal pools cannot be "created" and there is no known method to replace destroyed pools. E.g., 62 Fed. Reg. at 4931 ... As applied to the vernal pool species, the "creation" of off-site vernal pools is ineffective and unacceptable mitigation. 62 Fed. Reg. at 4931 (attempts to collect and move vernal pool species failed; and re-introducing species into other pools risks hybridization); AR 23724, 24435 (because creation of vernal pool habitat is not successful, "the wildlife agencies do not accept creation as mitigation for vernal pool impacts"); AR 32472 (FWS concludes that efforts to "create" vernal pools by transporting the soil are unsuccessful, unscientific, and unmonitored; and transplanting species had not been tested or proven successful).*

Reliance upon creation as mitigation would leave a significant adverse impact to vernal pool species by the project. The effort would also risk hybridization of San



O-15-38 | Cont. | Diego fairy shrimp with versatile fairy shrimp, potentially increasing the adversity of the impacts and risking loss of a portion of the protected species.

O-15-39 | The mitigation ratios of 2:1 for “unoccupied” pools and 5:1 for San Diego fairy shrimp “occupied” pools are inadequate. In 1997, the U.S. Fish and Wildlife Service estimated that ninety to ninety-seven percent of vernal pool habitat in San Diego County had been permanently lost. 62 Fed. Reg. 4925, 4926 (Feb. 3, 1997). Vernal pools have been so decimated that there should not be any further impacts – especially avoidable impacts. Considering the massive destruction already experienced, the fragmentation/isolation from large habitat blocks and other vernal pool complexes, and the degraded conditions for much of the remaining resource, any further impacts that may be allowed should be mitigated at higher levels. Minimum ratios of 4:1 for unoccupied pools ranging to 8:1 for occupied pools still found within substantial acreage of undeveloped habitat similar to the project site should be the minimum ratios applied.

### **Significant Adverse Impacts to Wildlife Habitat Linkages/Movement Corridors**

O-15-40 | There is no evidence to support the DEIR conclusion that the massive impacts of the project that separates wildlife from Otay Lakes is mitigated to a “less than significant” level. Measure M-BI-12 does not adequately mitigate impact BI-16.

The project introduces 7,800 people to the site most of whom will travel daily on a widened Otay Lakes Road. Installation of four culverts cannot compensate for the loss of this largely natural connection presently separated by only a low volume traffic two-lane road. The project footprint should be consolidated and the overall density reduced to levels that do not require a four-lane road. Even then, the impacts with culvert installation are severe enough to require a statement of overriding considerations.

### **Conclusion 2.3.6**

O-15-41 | The blanket conclusion that biological impacts are mitigated to a “less-than-significant” level by mitigation measures M-BI-1 through M-BI-15 is errant and lacking credible support. For all of the reasons listed above, impacts to biological resources remain significant. Many biological impacts are avoidable with a project redesign.

### **Addressing Climate Change is Urgent and Must be Considered at the Level of Individual Projects**

O-15-42 | Action to address climate change becomes ever more urgent with each passing day. The National Oceanic and Atmospheric Administration (NOAA) and National



Aeronautics and Space Administration (NASA) confirmed that 2014 was the hottest year ever recorded. (NASA 2015.) In the National Climate Assessment released by the U.S. Global Change Research Program, experts make clear that “reduc[ing] the risks of some of the worst impacts of climate change” will require “aggressive and sustained greenhouse gas emission reductions” over the course of this century. (Melillo 2014.) Indeed, humanity is rapidly consuming the remaining “carbon budget” necessary to preserve a likely chance of holding the average global temperature increase to only 2°C above pre-industrial levels. According to the IPCC, when non-CO<sub>2</sub> forcings are taken into account, total cumulative future anthropogenic emissions of CO<sub>2</sub> must remain below about 1,000 gigatonnes (Gt) to achieve this goal.<sup>58</sup> Some leading scientists—characterizing the effects of even a 2°C increase in average global temperature as “disastrous”—have prescribed a far more stringent carbon budget for coming decades. (Hansen 2013.) Climate change will affect California’s climate, resulting in such impacts as increased temperatures and wildfires, and a reduction in snowpack and precipitation levels and water availability.

As the Draft EIR recognizes, California has a mandate under AB 32 to reach 1990 levels of greenhouse gas emissions (“GHG”) by the year 2020, equivalent to approximately a 15 percent reduction from a business-as-usual projection. Health & Saf. Code § 38550. The state must also reduce emission levels to 80 percent below 1990 levels by 2050. (Executive Order S-3-05 (2005).) In enacting SB 375, the state has also recognized the critical role that land use planning plays in achieving greenhouse gas emission reductions in California.<sup>59</sup>

The state Legislature has found that failure to achieve greenhouse gas reduction would be “detrimental” to the state’s economy. Health & Saf. Code § 38501(b). In his 2015 Inaugural Address, Governor Brown reiterated his commitment to reduce greenhouse gas emissions with three new goals for the next fifteen years:

- Increase electricity derived from renewable sources to 50 percent;

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<sup>58</sup> IPCC 2013 (“Limiting the warming caused by anthropogenic CO<sub>2</sub> emissions alone with a probability of >33%, >50%, and >66% to less than 2°C since the period 1861–1880, will require cumulative CO<sub>2</sub> emissions from all anthropogenic sources to stay between 0 and about 1570 GtC (5760 GtCO<sub>2</sub>), 0 and about 1210 GtC (4440 GtCO<sub>2</sub>), and 0 and about 1000 GtC (3670 GtCO<sub>2</sub>) since that period, respectively. These upper amounts are reduced to about 900 GtC (3300 GtCO<sub>2</sub>), 820 GtC (3010 GtCO<sub>2</sub>), and 790 GtC (2900 GtCO<sub>2</sub>), respectively, when accounting for non-CO<sub>2</sub> forcings as in RCP2.6. An amount of 515 [445 to 585] GtC (1890 [1630 to 2150] GtCO<sub>2</sub>), was already emitted by 2011.”). *See also* UNEP 2013 (describing emissions “pathways” consistent with meeting 2°C and 1.5°C targets).

<sup>59</sup> *See* <http://www.arb.ca.gov/cc/sb375/sb375.htm>.



- Reduce today's petroleum use in cars and trucks by 50 percent;
  - Double the efficiency of existing buildings and make heating fuels cleaner.
- (Brown 2015 Address.)

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Although some sources of GHG emissions may seem insignificant, climate change is a problem with cumulative impacts and effects. *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, (9th Cir. 2008) 538 F.3d 1172, 1217 ("the impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis" that agencies must conduct). One source or one small project may not appear to have a significant effect on climate change, but the combined impacts of many sources can drastically damage California's climate as a whole. Similarly, CEQA requires that an EIR consider both direct and indirect impacts of a project. CEQA Guidelines, § 15064.

### **The Draft EIR's Analysis Improperly Discounts the Project's GHG Emissions**

O-15-43

The Draft EIR states that existing GHGs are negligible and assumed to be zero." [DEIR 3.8-12, 17] However, the EIR should compare the capacity of the existing site to absorb CO<sub>2</sub> to the post-project conditions, which will likely show that under existing conditions, the site has net negative GHG emissions.

O-15-44

The Draft EIR uses several different "methodologies" for evaluating the significance of the project's GHG impacts, which are estimated to be approximately 31,755 metric tons of CO<sub>2</sub> equivalents per year. None of these, however, are genuine methodologies for measuring or quantifying the project's impacts. Instead, they are choices as to the baseline conditions against which the project's impacts will be measured. According to CEQA Guidelines § 15064.4, the "existing environmental setting" is the appropriate baseline against which to measure the significance of a project's GHG impacts. Contrary to the Draft EIR, the existing environment is not merely a "factor that should be considered" under Guidelines § 15064.4, but the baseline for evaluating significance.

Although "Methodology 1" discloses the project's net GHG emissions in comparison to the existing conditions, it declines to determine significance based on this comparison. The stated rationale for this failure to comply with CEQA is that the project's net emissions "is not a sufficiently informative or reliable indicator of the significance of the Project's GHG emissions." This conclusion is baseless, and, if adopted, will thwart any meaningful effort to address and reduce GHG emissions from the thousands of discrete new sources that, while small in comparison to global emissions, each contribute to the cumulative problem. Numerous state and local agencies have adopted quantitative criteria to determine whether an individual project's emissions are cumulatively significant. The State Lands Commission, for example, has used a zero threshold of significance. In the



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exhaustive analysis of significance thresholds ranging from zero to 40,000-50,000 metric tons per year cited in the Draft EIR (3.8-13, fn.47), the California Air Pollution Control Officers Association concluded that only the zero and 900 metric tons per year thresholds were both highly effective at analyzing emissions from residential development and highly consistent with AB 32.

O-15-45

Regardless of the precise quantitative threshold adopted, it is both feasible and informative to determine significance based on the project's actual net emissions in comparison to the existing environment. The Draft EIR relies on statements by the Sacramento Municipal AQMD and San Joaquin Valley APCD that assert that "there is no known level of emissions that determines if a single project will substantially impact overall GHG emission levels in the atmosphere," but CEQA does not permit an EIR to decline making a significance determination because the project's contribution to a cumulative problem is individually small.

The statement of Sacramento Municipal AQMD that "AB 32 demonstrates California's commitment to reducing GHG emissions and the state's associated contribution to climate change, without intent to limit population or economic growth within the state" [DEIR 3.8-18] is irrelevant. The purpose of analyzing the significance of the project's GHG impacts based on the actual environment, not in comparison to some hypothetical version of the project, is not to limit population or economic growth but to disclose a significant impact and avoid and minimize it to the extent feasible. This objective, the core purpose of CEQA, is not possible under any of the "methodologies" specified in the Draft EIR. The Draft EIR claims, with no supporting evidence whatsoever, that there are "negative policy implications arising from the utilization of a uniform numeric threshold because of its potential to conflict with projected population and economic growth. But even if a "uniform numeric threshold" is not possible, the EIR provides no rationale for not setting *some* numeric threshold.

O-15-46

The Draft EIR further claims, "...the future residents and occupants of development enabled by this Project would exist and live somewhere else even if this Project were not approved." [DEIR 3.8-18] However, GHG emissions for such future residents are not fungible. The Draft EIR statement discounts the effect of land use policy upon population growth and hence the project's impact upon population growth, which includes that growth's corresponding GHG impacts. Land use policy does indirectly influence human reproductive habits. The more residences the project builds and with larger square footages, the more it encourages population growth and exacerbates GHG emissions.

O-15-47

"Methodologies" 2 and 3 rely on legally impermissible comparisons of the project's actual emissions to higher-emitting hypothetical situations or variants of the project. This approach has been invalidated as a matter of law in a long and



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consistent line of court decisions. See *Communities for a Better Environment v. South Coast Air Quality Management District* (2010) 48 Cal.4th 310. In particular, the Supreme Court rejected the use of hypothetical and illusory baselines for environmental analysis such as that used in the Draft EIR because they ‘can only mislead the public as to the reality of the impacts and subvert full consideration of the actual environmental impacts.’” Moreover, these approaches are not consistent with the goals of AB 32. The AB 32 Scoping Plan projected a “business as usual” scenario solely to quantify the emissions reductions across *all sectors of the California economy* necessary to achieve AB 32’s *statewide* emissions goals for the year 2020 goals. The Scoping Plan then identified dozens of measures from various economic sectors that could contribute to the necessary reductions. But absent some analysis of the project’s contributions to statewide emissions goals and inventories, which the Draft EIR fails to provide, it is not possible to scale down the Scoping Plan’s business as usual assumptions to be used as significance criteria on a project level, nor is it rational to conclude that the project is consistent with AB 32’s goals based on a comparison with a non-existent, hypothetical higher-emitting version of the project.

### **Additional Mitigation is Needed to Address the Project’s Significant GHG Impacts**

To the extent the Draft EIR’s GHG analysis relies on the County’s thresholds of significance for GHGs and BAAQMD’s invalidated service population threshold, these thresholds also fail as they do not address the actual significance of the project’s impacts on the existing environment.

O-15-48

The Draft EIR acknowledges the California Energy Commission goal of making all new residential homes and commercial building net energy zero [DEIR 3.9-6]. Yet, the project does not install any solar water heaters and commits to meeting only 30% of electric demand with PV solar. The DEIR does not define what 30% means in actual installed capacity to make this a meaningful commitment. Furthermore, solar should be installed on all public and private structures. There are likely additional opportunities to install PV solar on shade structures in parks and parking lots. These are feasible mitigation measures that can offset the project’s cumulatively significant adverse impacts to climate change. Why haven’t they been included?

O-15-49

The DEIR acknowledges that the transportation sector is the largest single contributor to GHG emissions, yet the project does not have a public transportation component and makes only a hollow promise to “evaluate the feasibility of providing bus service to the site.” [DEIR 3.8-29] The project provides opportunities for pedestrian and bicycle modes, but does not accomplish the most effective means of encouraging those modes to be utilized by compacting most development within



O-15-49  
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a five to ten minute walk. This could be accomplished by developing a project more consistent with the footprint of Alternative G. Without doing so, the project amounts to yet another auto-oriented sprawl development that makes it more difficult to fight climate change.

The Draft EIR should consider additional mitigation measures during construction and operation of the project that would lower the project's overall GHG emissions and contribution to climate change. The California Air Pollution Control Officers Association has identified existing and potential mitigation measures that could be applied to projects during the CEQA process to reduce a project's GHG emissions. (CAPCOA 2010). The California Office of the Attorney General also has developed a list of reduction mechanisms to be incorporated through the CEQA process. (California Office of the Attorney General 2010). These resources provide a rich and varied array of mitigation measures that should be incorporated into the revised project. Potential mitigation measures during operation of the project include, but are not limited to:

O-15-50

- Analyzing and incorporating the U.S. Green Building Council's LEED (Leadership in Energy and Environmental Design) or comparable standards for energy and resource-efficient building during pre-design, design, construction, operations and management.
- Designing buildings for passive heating and cooling, and natural light, including building orientation, proper orientation and placement of windows, overhangs, skylights, etc.;
- Designing buildings for maximum energy efficiency including the maximum possible insulation, use of compact florescent or other low-energy lighting, use of energy efficient appliances, etc.
- Reducing the use of pavement and impermeable surfaces;
- Requiring water reuse systems;
- Installing light emitting diodes (LEDs) for traffic, street and other outdoor lighting
- Limiting the hours of operation of outdoor lighting
- Maximizing water conservation measures in buildings and landscaping, using drought-tolerant plants in lieu of turf, planting shade trees;
- Ensure that the Project is fully served by full recycling and composting services;
- Ensure that the Project's wastewater and solid waste will be treated in facilities where greenhouse gas emissions are minimized and captured.
- Installing the maximum possible photovoltaic array on the building roofs and/or on the project site to generate all of the electricity required by the Project, and utilizing wind energy to the extent necessary and feasible;
- Installing solar water heating systems to generate all of the Project's hot water requirements;



- Installing solar or wind powered electric vehicle and plug-in hybrid vehicle charging stations to reduce emissions from vehicle trips.

Mitigation measures related to Project construction could include:

- Utilize recycled, low-carbon, and otherwise climate-friendly building materials such as salvaged and recycled-content materials for building, hard surfaces, and non-plant landscaping materials;
- Minimize, reuse, and recycle construction-related waste;
- Minimize grading, earth-moving, and other energy-intensive construction practices;
- Landscape to preserve natural vegetation and maintain watershed integrity;
- Utilize alternative fuels in construction equipment and require construction equipment to utilize the best available technology to reduce emissions.

### Significant Adverse Impacts to Aesthetics

*“Therefore, impacts to aesthetics and visual resources remain significant and unmitigable”. [DEIR 2.1-16]*

The significant visual and aesthetic impacts of the project can be partially mitigated by consolidating the project and reducing the density to a point the Otay Lakes Road scenic highway can remain two lanes. This should be required in order to mitigate other significant adverse impacts of the project as well.



## Conclusion

The project exposes people and structures to a significant risk of loss, injury or death involving wildland fires. The project is proposed for rugged fire vulnerable topography that is in the path of wind driven fires originating from the northeast near SR-94.

O-15-52 The EIR does not adequately research and mitigate the fire safety issues associated with the project. The significant gaps identified in this letter need to be addressed and the document re-circulated for further public review and comment.

The project has significant avoidable impacts to biological resources, water supplies and climate change. The project's significant aesthetic impacts could be at least partially mitigated by consolidating the development footprint – which could alleviate other significant adverse impacts.

Therefore, the project should be modified or abandoned.

Thank you for considering our comments.



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Cc: San Diego County Board of Supervisors



**Attachments:**

Resume – Van Collinsworth  
Resume – Richard Halsey

**Appendix 1: Exhibits A-C**

Exhibit A: Otay Ranch 2.6 Mile Flame Front Aerial  
Exhibit B: Lethal Radiant Heat Exposure Otay Ranch  
Exhibit C: Tentative Map Sheet 6 Amended for Lethal Radiant Heat Exposure

**Appendix 2: Reference Exhibits 1-62**

Exhibit 1: Nationwide Aerial Application of Fire Retardant...  
Exhibit 2: Policy for Aerial Delivery of Wildland Fire Chemicals Near Waterways  
Exhibit 3: Fire Officials Say San Diego Should Brace For 'Unprecedented' Fire Season  
Exhibit 4: BehavePlus Data Use Requirements  
Exhibit 5: Cedar Fire 2003 After Action Report  
Exhibit 6: Firefighter Safety Zones: How Big Is Big Enough  
Exhibit 7: Lessons From the Fire  
Exhibit 8: Freeway Complex Preliminary Report  
Exhibit 9: Use of a Firebrand Generator to Investigate...  
Exhibit 10: Southern California Firestorm 2003 Report...  
Exhibit 11: Esperanza Fire Accident Investigation Factual Report  
Exhibit 12: Novato Fire Protection District Cedar Fire Incident Recovery Report  
Exhibit 13: Yarnell Hill Incident Reports  
Exhibit 14: Incident Response Pocket Guide  
Exhibit 15: Firefighter Safety Zones... Model Based Upon Radiative Heating  
Exhibit 16: Harris Fire Fatality Cal Fire Report  
Exhibit 17: Wildland Fire Accidents by State  
Exhibit 18: Trends in Wildland Fire Entrapment Fatalities  
Exhibit 19: National Fire Weather Report Summary 2013  
Exhibit 20: San Diego County Fuel Moisture Map October 2007  
Exhibit 21: Wildfires send cars right to scrap heap  
Exhibit 22: Southern California Wildfires FEMA Map  
Exhibit 23: SanGis Evacuation Map 10/26/2007  
Exhibit 24: 2007 Firestorms Damage Assessment  
Exhibit 25: How to Predict Spread and Intensity of Forest and Range Fires  
Exhibit 26: Executive Order B-29-15 Drought State of Emergency  
Exhibit 27: Rancho Santa Fe tops water-use list  
Exhibit 28: California Reservoir Levels 5/5/2015  
Exhibit 29: Lower Colorado River Water Supply Report  
Exhibit 30: Public Update for Drought Response  
Exhibit 31: Contaminated Groundwater Wells Close in South Lake Tahoe  
Exhibit 32: Recent Rain Not Enough To Ease California Drought  
Exhibit 33: Lake Mead at Hoover Dam Elevation



Exhibit 34: Colorado River Drought Forces a Painful Reckoning for States  
Exhibit 35: Colorado River Basin groundwater levels drop even faster than reservoirs  
Exhibit 36: GRACE Reveals Major Groundwater Loss in California's Heartland  
Exhibit 37: Groundwater depletion during drought threatens future water security...  
Exhibit 38: How the West was Lost  
Exhibit 39: Why state's water woes could be just beginning  
Exhibit 40: CADFW 12/17/2012 Letter - "Status of the Burrowing Owl" Report  
Exhibit 41: MSCP Vernal Pool Decision & Injunction Case No. 98-CV-2234-B(JMA)  
Exhibit 42: District Court Issues Decision Invalidating San Diego MSCP...  
Exhibit 43: Judge Finds Fault with Landmark Habitat Plan  
Exhibit 44: Once a National Model, Habitat Plan Faces Uncertain Future  
Exhibit 45: The Vanishing Owl  
Exhibit 46: Owl Legalese  
Exhibit 47: Recovery Plan for Vernal Pools of Southern California  
Exhibit 48: MSCP Implementing Agreement  
Exhibit 49: USFS Ecological Restoration Implementation Plan  
Exhibit 50: Assessment of the Biological Monitoring Plan for SD MSCP  
Exhibit 51: SD MSCP Covered Species Prioritization  
Exhibit 52: Grouping and Prioritizing Natural Communities for the SD MSCP  
Exhibit 53: Developing Conceptual Models to Improve Biological Monitoring...  
Exhibit 54: Vegetation Community Monitoring Recommendations for the MSCP  
Exhibit 55: SD MSCP Rare Plan Monitoring Review and Revision  
Exhibit 56: Summary of Faunal Monitoring SD MSCP  
Exhibit 57: Monitoring & Management in the SD MSCP - Workshop  
Exhibit 58: Spirit of the Sage Council SD MSCP Comments  
Exhibit 59: MSCP Table 3.5 Conditions for Coverage  
Exhibit 60: Burrowing Owl Conditions for Coverage  
Exhibit 61: Critical Habitat for the Quino Checkerspot Butterfly  
Exhibit 62: Recovery Plan for the Quino Checkerspot Butterfly



**Appendix 1: Reference Exhibits A - C**  
**Otay Ranch 13 CCI – CBD – PWS May 2015 Letter**

Resume – Van Collinsworth

Resume – Richard Halsey

Exhibit A: Otay Ranch 2.6 Mile Flame Front Aerial

Exhibit B: Lethal Radiant Heat Exposure Otay Ranch

Exhibit C: Tentative Map Sheet 6 Amended for Lethal Radiant Heat Exposure

# Van K. Collinsworth

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## Wildland Fire and Natural Resource Expert

### Experience

#### **Wildland Firefighter - Forestry Technician, USDA Forest Service** **1980-1993**

- Responded to fire emergencies in the Western United States including major Santa Ana wind driven fires on Engine and Hand Crews. Performed in supervisory positions: Incident Commander, Assistant Operations Chief, Assistant Air Operations Chief, Fire Engine Operator, Assistant Fire Engine Operator, Squad Supervisor. Performed backfire and burnout operations with drip torches and fusees. Coordinated with a heli-torch in chaparral backfiring. Participated in search & rescue operations. Completed and taught fire training courses and exercises. Planned and executed successful prescription burns without escape incidents.

#### **Natural Resource Geographer / Resource Analyst** **1994-2015**

- Shape community development and policy through analysis of and contribution to environmental documents, planning efforts and public relations. Review legal notices, hearing notices, staff reports, conditional use permits, general plans, zoning overlays, grading ordinances, fire protection plans, aerial photographs and other planning documents. Provide expert testimony on fire and natural resource issues.
- Performed site field evaluations. Identified and documented resources with high-resolution images and GPS. Created maps, spreadsheets, films and web content for negotiation and public distribution.
- Organized and participated in public forums. Delivered television, radio and telephone press interviews.
- Provided oversight for construction mitigation & monitoring agreements, including the application of storm water regulations; development and implementation of landscaping plans for the SR-125 Tollway.
- Coordinated with Caltrans, CA Regional Water Quality Control Board, County of San Diego, City of San Diego, City of Chula Vista staff, elected officials, planning group representatives and community members to resolve transportation, land use and various community environmental issues.
- Served as a founding member of the Policy Committee for the San Diego Fire Recovery Network. Authored "Preventing Firestorm Disaster" PPT, November 2003, Advising Editors, Jon Keeley, Richard Minnich, Rick Halsey, Patrick Abbott and Jack Cohen.

#### **Instructor - Grossmont Union High School District** **1988-1994**

- Designed a high-tech learning laboratory addressing critical needs at multiple skill levels. Most graduates, highest test scores, highest attendance in system.

### Education

**Master of Arts, Geography/Political Science emphasis, Humboldt State University** **1986**

**Teaching Credential, Social Science, Humboldt State University** **1983**

**Bachelor of Arts, Geography, Humboldt State University** **1982**

Includes 125-quarter units of Environmental Resource and Biological Sciences.

**Richard W. Halsey**  
California Chaparral Institute  
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**Richard W. Halsey** is the Director of the California Chaparral Institute, a non-profit, research and educational organization focusing on the ecology of California's chaparral ecosystems, the dynamics of wildland fire in both natural and human communities, and the promotion of nature education in a way that encourages communities to better connect with their surrounding, natural environment. Mr. Halsey currently works with the San Diego Museum of Natural History, publishes *The Chaparralian*, the quarterly journal of the California Chaparral Institute, and continues to teach natural history throughout the state. He has worked as a consultant on wildfire issues and has given more than 400 presentations about the chaparral ecosystem and wildfire over the past ten years. Mr. Halsey taught biology for over twenty years in both public and private schools and was honored as the Teacher of the Year for San Diego City Schools in 1991. The second edition of his book, *Fire, Chaparral, and Survival in Southern California*, was published in 2008. Mr. Halsey has also been trained as a Type II wildland firefighter.

## **EDUCATION**

B.A. Environmental Studies and Anthropology. University of California, Santa Barbara, with honors. 1978.

Single Subject Teaching Credentials for Life Science, Physical Science and Social Science. University of California, Berkeley, 1979.

M.A. Educational Administration. California State University, San Diego, 1987.

## **PROFESSIONAL EXPERIENCE**

2004 – present. Director, California Chaparral Institute.

2013 – Consultant for Quinn Emanuel Urquhart & Sullivan, LLP to document and analyze impacts of the 2007 Witch Creek Fire.

2009 – Expert testimony, California Public Utilities Commission regarding wildfire risks of the Tehachapi Transmission Project in the Puente Hills, Los Angeles County, CA.

2008 – Expert testimony, California Public Utilities Commission regarding wildfire and ecological risks relating to the Sunrise Powerlink, San Diego County, CA.

2007 – 2008 Wildfire consultant for Aspen Environmental regarding the Environmental Impact Report (EIR) of the Sunrise Powerlink, San Diego County, CA.

2007 – Retained by the Catalina Island Conservancy as an expert witness regarding the Island Fire on Catalina Island (2007).

2007 – Wildfire consultant, Catalina Island Conservancy.

2007 – Intermediate Firing Operations training, CalFire, Amador-El Dorado Unit, Chance Ranch Vegetation Management burn, June 12-14.

2005, 2007 Seasonal wildland firefighter, USFS Type II, Crew 5, Cleveland National Forest.

1984 – 1993. Biology teacher (Advanced Placement, Advanced Science), Serra High School, San Diego City Schools, CA.

## **PROFESSIONAL ORGANIZATIONS AND AFFILIATIONS**

San Diego Regional Fire Safety Forum (Founding Member)  
San Dieguito River Valley Conservancy  
California Native Plant Society

## **SELECTED PUBLICATIONS**

2015. Halsey, R.W., A.D. Syphard. High-severity fire in chaparral: cognitive dissonance in the shrublands. In *The Ecological Importance of High-Severity Fire*. Elsevier Press. In press.

2015. Desert Chaparral: Life on the Very Edge. Desert Report. Sierra Club California/Nevada Desert Committee. In press.

2009. Halsey, R.W., J.E. Keeley, K. Wilson. Fuel age and fire spread in southern California chaparral ecosystems: natural conditions vs. opportunities for fire suppression. *Fire Management Today* 69, #2: 22-28.

2009. Halsey, R.W. Chaparral as a natural resource: changing the conversation about chaparral and fire. In *Proceedings, California Native Plant Society Conservation Conference, Sacramento, CA* (In Press).

2008. Halsey, R.W. *Fire, Chaparral, and Survival in Southern California*. Second edition. Sunbelt Publications. San Diego, CA. 192 p.

2007. Halsey, R.W. Chaparral: Pure California. Fremontia. Journal of the California Native Plant Society 35: 2-7.

2005. Halsey, R.W. America's Fight with Nature's Fire. Book Review. David Carle, 2002. Madrono 52: 76-78.

2005. Halsey, R.W. Tending Fire: Coping with America's Wildland Fires. Book Review. S. J. Pyne, 2004. Madrono 52: 213-214.

2005. Fire: Destruction and Renewal in Southern California. Educational pamphlet for Mission Trails Regional Park, San Diego, California.

2004 - present. The Chaparralian. Quarterly publication that discusses issues relating to chaparral ecology and wildland fire in California. Publisher/contributor.

2004. Halsey, R.W. In search of allelopathy: an eco-historical view of the investigation of chemical inhibition in California coastal sage scrub and chamise chaparral. Journal of the Torrey Botanical Society 131: 343-367.

2004. Habitats of Mission Trails Regional Park. Five permanent, trailside panel displays within the park with both text and photos.

1993. Benchmarks for Science Literacy, Project 2061, American Association for the Advancement of Science, Oxford University Press. Contributor.

## **SELECTED PRESENTED PAPERS AND LECTURES**

2008. Fuel age and fire spread in Southern California chaparral ecosystems. Presented paper. Association for Fire Ecology Regional Conference. Tucson, AZ. 1/30/08.

2008. Chaparral does not "need" to burn. Correcting fire ecology myths about Mediterranean shrublands. Presented paper. Association for Fire Ecology Regional Conference. Tucson, AZ. 1/30/08.

2007. The Chaparral Fire Environment for Wildland Firefighters. Conducted five workshops for Cleveland National Forest firefighters. 5-6/07.

2007. Wildfire Education for the Business Sector. Conducted four workshops for community professionals on wildland fire and chaparral ecology. San Diego Natural History Museum. 3-4/07.

2006. Weather, Fuels, and Suppression During the 2003 Cedar Fire: Which variables made the critical difference? Presented paper. 3<sup>rd</sup> International Fire Ecology and Management Conference. Association for Fire Ecology. San Diego, CA. 11/06.

2006. Recovering from a Wildfire. Post-fire recovery workshop. Yucca Valley, CA. 7/26/06.

2005. California's Chaparral. California's Green series with Huell Howser. PBS television. 10/05.

2004. Chaparral, California's Unknown Wilderness. Lecture. San Diego Natural History Museum. 12/1/04.

2004. Wildland Resources, Wildfire, and Personal Responsibility. Presented paper. California, Nevada, Hawaii Forest Fire Council Conference. Reno, NV. 10/21/04.

2004. Value of Chaparral. San Diego Fire Recovery Network Landscape Workshop. San Diego Natural History Museum. 9/15/04.

2004. Fuel Age in the Chaparral. Does it Matter? Lecture. San Diego Fire Recovery Network Fire Ecology/Chaparral Workshop. San Diego Natural History Museum. 4/21/04.

2003. Fire Ecology Forum. San Diego City TV 24. 12/13/03.

2003. Fire and Forest Ecology. Full Focus, KPBS. 12/12/03.

### **SELECTED NEWSPAPER ARTICLES**

No one answer to reducing fire threat. San Diego Union-Tribune, 10/31/07.

Why San Diego loses firefighters. San Diego Union-Tribune, 3/6/06.

Who speaks for the chaparral? San Diego Union-Tribune, 1/14/05

The Cedar fire: a question of blame? San Diego Union-Tribune, 7/22/04.

Forest vs. brushland fires: a critical difference. San Diego Union-Tribune, 1/28/04.

Reducing wildfire dangers with facts. San Diego Union-Tribune, 11/4/03.

### **OTHER RELATED EXPERIENCES**

Burned Area Emergency Response (BAER) member, Horse fire, San Diego County, CA. 8/06.

Living with fire in chaparral ecosystems: providing tools for decision makers. Consultant and working group coordinator. USDA, Forest Service. 2005.

San Diego Wildfires Project. Consultant. San Diego State University, Department of Education. 2004.

Earth, Wind, and Wildfire museum exhibit. Consultant for the San Diego Natural History Museum. 2004.



*2.6 Mile NE Wind Driven Flame Front*

Project Site

Upper Otay Lake

Severed  
Evacuation  
Route

Fuel Model 4 Fire Chimneys

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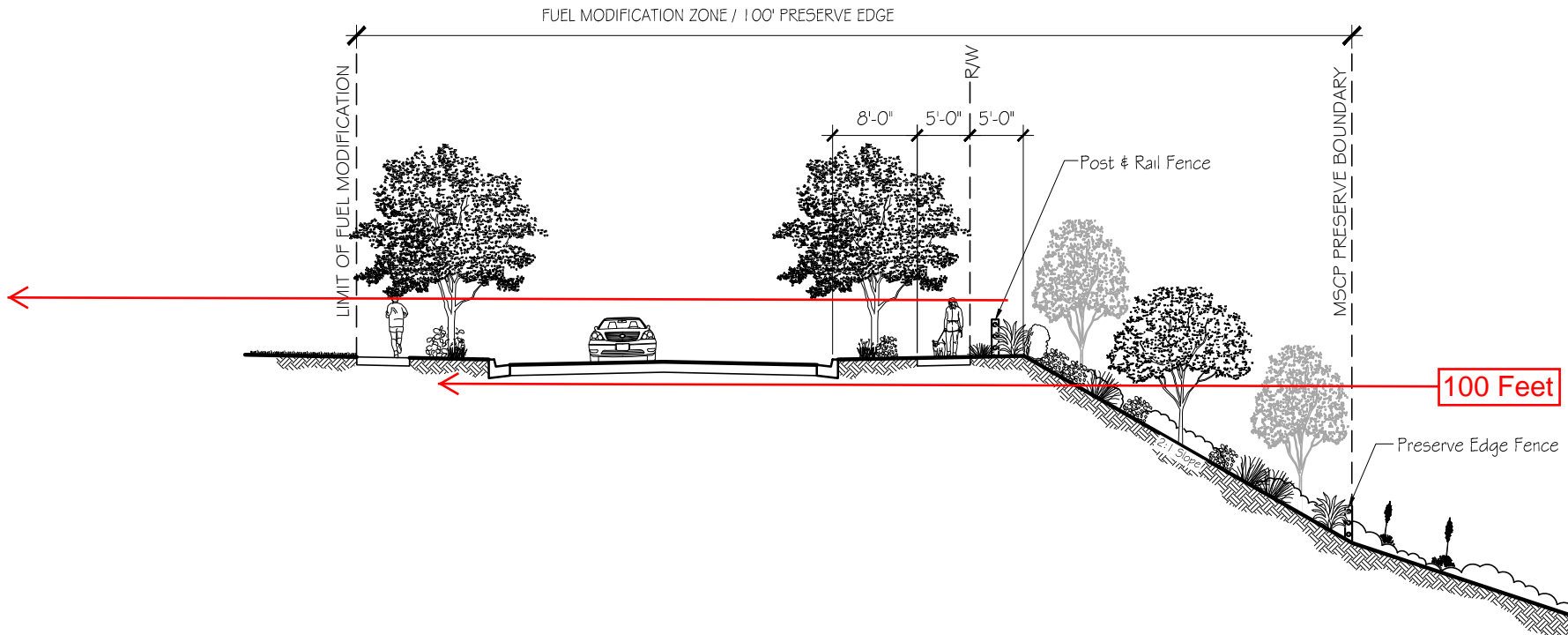
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Google earth

Radiant Heat Exposure Hazard Zone = Within 4x Flame Length

Example

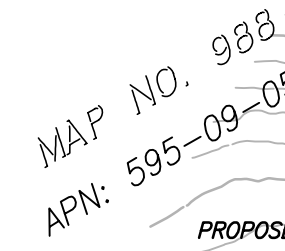
Combustion Generating a Flame Length of 50 Feet = 200 Feet Hazard Zone of Radiant Heat



Amended for Lethal Radiant Heat Exposure  
During a Santa Ana Wind Driven Firestorm

# Otay Ranch, Village 13

## Typical Edge Condition


$$1'' = 200'$$


Amended for Lethal Radiant Heat Exposure During a Santa Ana Wind Driven Firestorm

SHEET  
6  
OF  
13